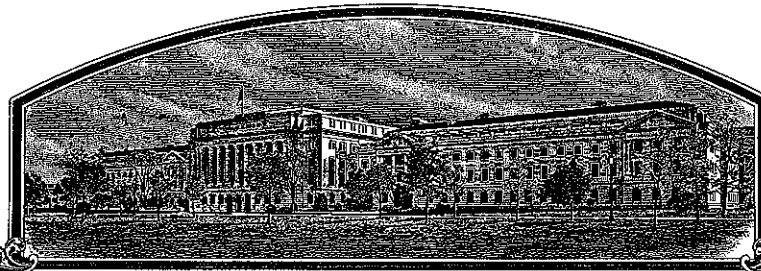


No.

200200252



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

State of Oregon by/through S T D F acting
on behalf of Oregon State University

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLACEMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PROPAGATING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED IN THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

POTATO

'Wallowa Russet'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifth day of June, in the year two thousand and eight.

Attest:

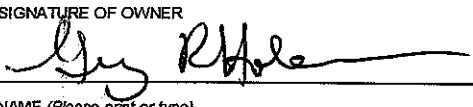
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICEAPPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER STATE OF OREGON. State of Oregon by/through STBHE acting on behalf of Oregon State University Office of Technology Transfer Oregon State University 312 Kerr Administration Building Corvallis, OR 97331		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME AO87277-6		3. VARIETY NAME Wallowa Russet	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) Office of Technology Transfer Oregon State University 312 Kerr Administration Building Corvallis, OR 97331		5. TELEPHONE (include area code) 541.737.0674		FOR OFFICIAL USE ONLY PVPO NUMBER 200200252	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Educational Institution		8. IF INCORPORATED, GIVE STATE OF INCORPORATION		FILING DATE August 19, 2002	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Legal Representative Ms. Sarah E. Mabee Office of Technology Transfer Oregon State University 312 Kerr Administration Bldg Corvallis, OR 97331-2140 USA 541-737-8100		Technical Representative Dr. M. Isabel Vales Associate Professor, Potato Breeding and Genetics Crop and Soil Science Dept. Oregon State University Corvallis, OR 97331 USA 541-737-3539		FILING AND EXAMINATION FEES: \$ 2705.00 DATE 8/19/02 CERTIFICATION FEE: \$ 768.00 DATE 12/21/07	
11. TELEPHONE (include area code) 503.248.0100		12. FAX (include area code) 503.248.0105		14. CROP KIND (Common Name) Common: Potato Scientific: Solanum tuberosum, L. Family: Solanaceae	
13. E-MAIL sja@ip-rights.com		14. CROP KIND (Common Name) Common: Potato Scientific: Solanum tuberosum, L. Family: Solanaceae			
18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office) \$ 2,705.00			19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no," go to item 22)		
			20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED		
			21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1, 2, 3, etc. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)		
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		
24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 			SIGNATURE OF OWNER		
NAME (Please print or type) George R. Holdren			NAME (Please print or type)		
CAPACITY OR TITLE Vice Provost for Research			CAPACITY OR TITLE		
DATE 6/17/02			DATE		

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

Plant Variety Protection Office
Telephone: (301) 504-5518 FAX: (301) 504-5291
General E-mail: PVP@mail.usda.gov
Homepage: <http://www.ams.usda.gov/science/pvpo/PVPindex.htm>

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SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, Seed Regulatory and Testing Branch, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

There were no sales for commercial purposes prior to the official variety release date of January 30, 2002.

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Exhibit A: Origin and Breeding History of the Variety

Wallowa Russet was initially selected by Oregon State University Agriculture Experiment Station scientists at the Central Oregon Experiment Station, Powell Butte, Oregon, in 1989 from a cross between A82758-3 and Ranger Russet performed by Dr. J.J. Pavsek, of the USDA-ARS, Aberdeen, Idaho, in 1987.

Wallowa Russet was then tested extensively as AO87277-6 (A=Aberdeen, ID, cross, and O=Oregon selection) in Oregon Statewide Trials at four locations from 1993 to 2000, in Tri-State (OR, WA, ID) Trials at three locations in 1996, and in Western Regional Trials at 14 locations in seven states from 1997 to 1999. The Oregon State University Potato Variety Development Program, led by Dr. Alvin R. Mosley, and Oregon State University sponsored AO87277-6 in all trials and supplied all seed. Wallowa Russet was released in 2002 by Oregon State University, in cooperation with Idaho, Washington, and the USDA-ARS. There were no sales for commercial purposes prior to the official variety release date of January 30, 2002.

Breeding History:

Wallowa Russet was selected from a cross between A82758-3 (female parent) and Ranger Russet (male parent); the attached pedigree chart shows the parental lineage for three preceding generations.

Breeding Method:

A traditional breeding process was used. Male and female parents were crossed to produce berries with seeds. Seedlings were grown in a greenhouse, and greenhouse-produced tubers were field-planted. Wallowa Russet was line-selected from these plantings using the criteria mentioned below.

Selection Criteria:

Selection criteria for Wallowa Russet included marketable yield, high specific gravity, processing quality, few internal and external defects, adaptability to a wide range of soil and climatic conditions, and taste similar to Russet Burbank when baked.

Difference from Original Material:

Wallowa Russet is superior to its parents and siblings in marketable yield and processing quality.

Uniformity and Stability:

Wallowa Russet was observed annually in Oregon Statewide Trials from 1993 to 2000 in four locations for eight generations, in Tri-State Trials in 1996 in three locations for one generation, and in Western Regional Trials from 1997 to 1999 for three generations, and was determined to be genetically uniform and stable from generation to generation with no apparent evidence of variants.

Most potato varieties eventually produce mutant plants known as "giant hills," "bolters," or "bull plants." It is expected that these plants may eventually be found in Wallowa Russet at a very low frequency.

Variety Name:

As a permanent potato variety name, Wallowa Russet is unique to this variety as shown in The Potato Association of America "North American Potato Variety Inventory" (<http://www.umaine.edu/PAA/PVI.htm>).

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Wallowa Russet (AO87277-6) Pedigree

The female parent is listed above the male parent.

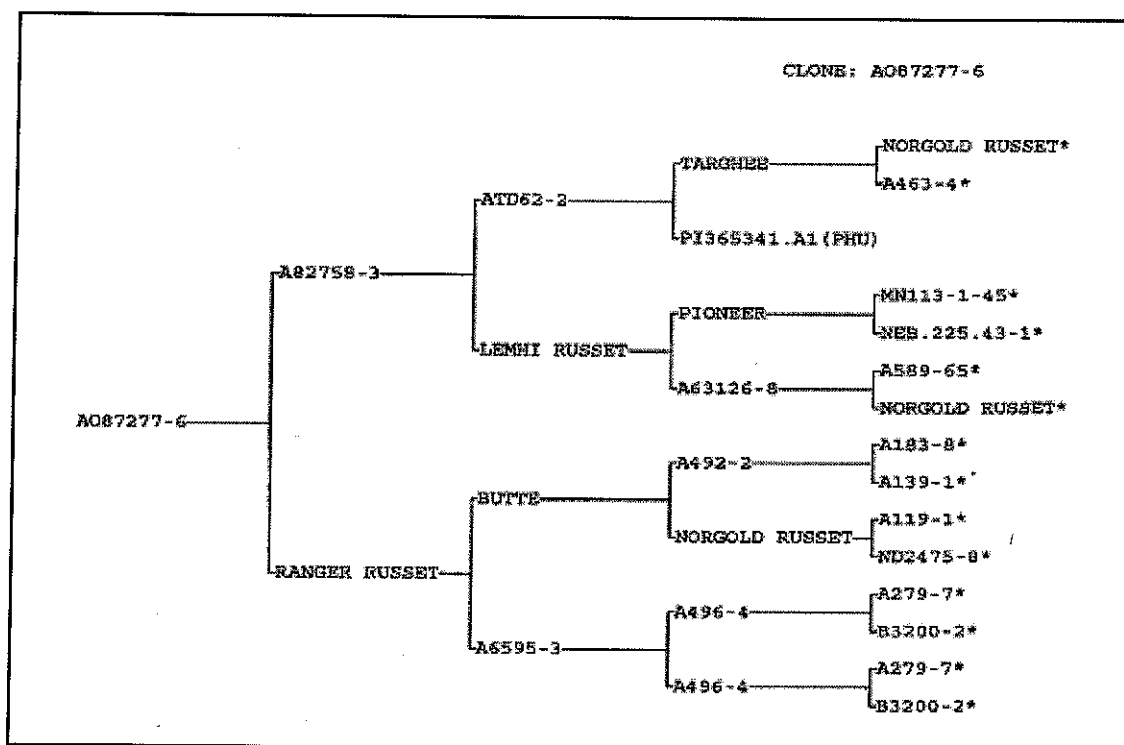


Exhibit B: Statement of Distinctiveness

Wallowa Russet is most similar to the potato varieties Russet Burbank and Russet Norkotah.

Wallowa Russet has a number of distinctive characteristics that differentiate it from Russet Burbank and Russet Norkotah, some of which are indicated below:

- 1) Wallowa Russet has a Purple-Violet-colored (82C RHS) corolla, whereas Russet Burbank has a White (155A RHS) corolla, and Russet Norkotah also has a White (155C RHS) corolla.
(See Document B-1.)
- 2) Wallowa Russet produces a higher percent of US No. 1 grade tubers than Russet Burbank.
(See Document B-2, Tables 1 and 2. Additional data is presented in Exhibit D, "*Wallowa Russet (AO87277-6) Performance and Characteristics*", Tables 1, 4, and 5)
- 3) Wallowa Russet tubers tend to have a higher specific gravity (an indicator of starch content and fry quality) than either Russet Burbank or Russet Norkotah.
(See Document B-2, Tables 1 and 2. Additional data is presented in Exhibit D, "*Wallowa Russet (AO87277-6) Performance and Characteristics*", Tables 1, 4, and 10)
- 4) Wallowa Russet usually produces a lighter, more desirable fry color than Russet Burbank.
(See Document B-2, Tables 1 and 2. Additional data is presented in Exhibit D, "*Wallowa Russet (AO87277-6) Performance and Characteristics*", Tables 1, 4, and 10)
- 5) Wallowa Russet tubers tend to have fewer growth cracks than Russet Burbank.
(See Document B-2, Tables 1 and 2. Additional data is presented in Exhibit D, "*Wallowa Russet (AO87277-6) Performance and Characteristics*", Tables 2 and 6)



Wallowa Russet Flower

- The corolla is colored Purple-Violet (82C RHS).
- Calyx anthocyanin coloration is weak.
- Anther shape is a pear-shaped cone.



Russet Burbank Flower

- The corolla is colored White (155A RHS).
- Calyx anthocyanin coloration is absent.
- Anther shape is a pear-shaped cone.



Russet Norkotah Flower

- The corolla is colored White (155C RHS).
- Calyx anthocyanin coloration is absent.
- Anther shape is a broad cone.

Additional Statements of Distinctness

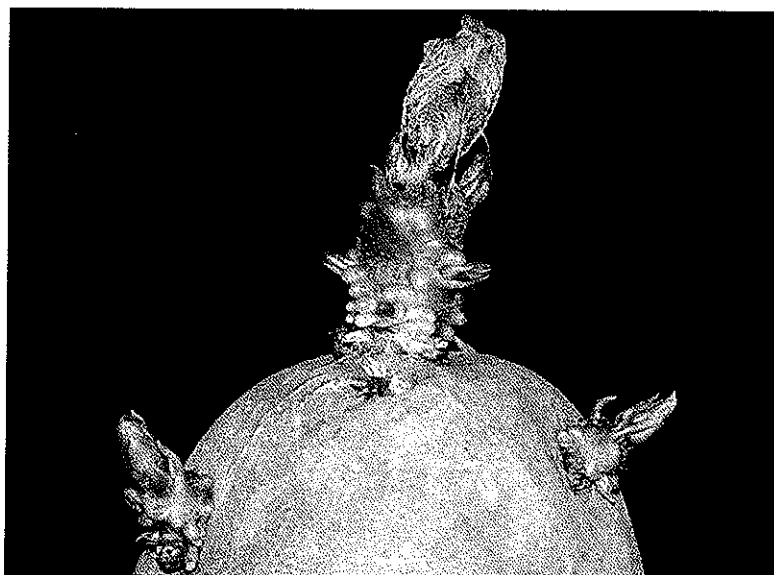
In evaluating a potential new variety over several years in Local, Tri-State, and Western Regional trials, a number of characteristics are frequently observed which differentiate the variety from reference varieties. Characters considered most distinct are mentioned and documented in Exhibit B (Statement of Distinctness), with either qualitative or quantitative documentation attached.

Some additional characters which appear distinct, based on either observation or multiple trial comparisons, are included below. Each statement is referenced with documentation. Quantitative documentation often consists of a table of multiple-year trial means presented in a publication. Because the publication tables frequently do not include typical statistical analyses, these statements are included in Exhibit D as additional information, rather than in Exhibit B.

Distinctive Character:

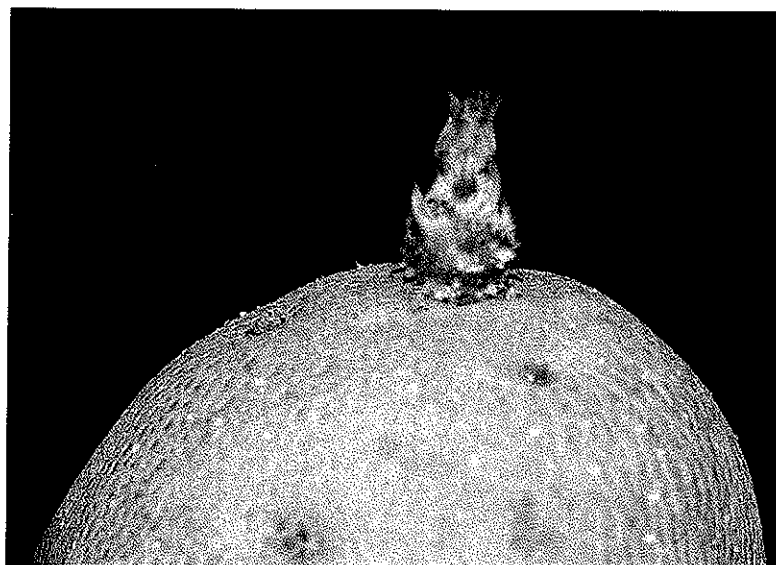
- 1) Wallowa Russet has a lower incidence of Hollow Heart and Brown Center than Russet Burbank.
(See the American Journal of Potato Research (2003; 80:289-294) article "*Wallowa Russet: A Full Season Long Russet for Processing and Fresh Market*", Table 5. Also see the publication "*Wallowa Russet (AO87277-6) Performance and Characteristics*", Tables 2, 4, and 6.)
- 2) Wallowa Russet tends to have a lower incidence of sugar ends than Russet Burbank when evaluated across multiple years.
(See the American Journal of Potato Research (2003; 80:289-294) article "*Wallowa Russet: A Full Season Long Russet for Processing and Fresh Market*", Table 5. Also see the publication "*Wallowa Russet (AO87277-6) Performance and Characteristics*", Tables 2 and 10)
- 3) Wallowa Russet light sprout root initials are abundant in frequency, whereas both Russet Burbank and Russet Norkotah light sprout root initials are moderate in frequency.
(See Document D-2.)
- 4) Wallowa Russet light sprout tip anthocyanin coloration intensity is medium, whereas that of both Russet Burbank and Russet Norkotah is absent.
(See Document D-2.)
- 5) Wallowa Russet light spout general shape is broad cylindrical, whereas both Russet Burbank and Russet Norkotah light sprouts have a conical general shape.
(See Document D-2.)

per e-mail # 200200252
Dec 10, 2007
LMC
12-11-2007



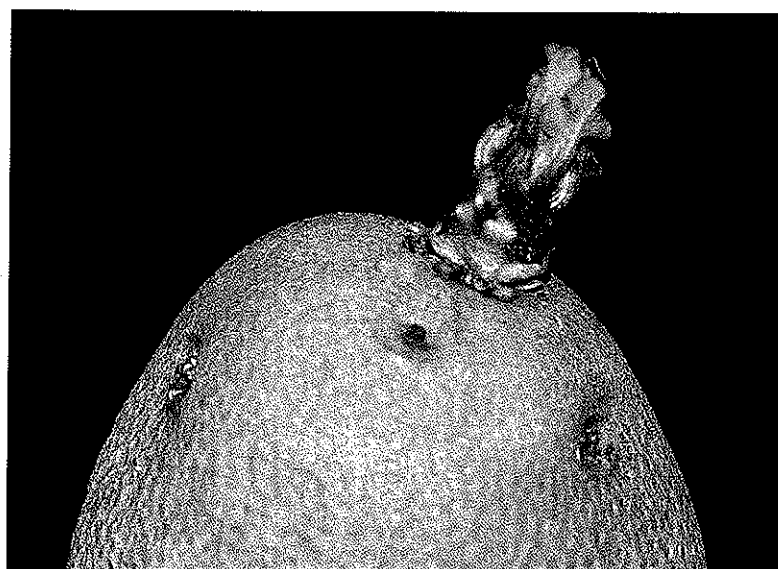
Wallowa Russet Light Sprout

- Light sprout root initials are abundant in frequency.
- Light sprout tip anthocyanin coloration intensity is medium.
- Light sprout general shape is broad cylindrical.



Russet Burbank Light Sprout

- Light sprout root initials are moderate in frequency.
- Light sprout tip anthocyanin coloration intensity is absent.
- Light sprout general shape is conical.



Russet Norkotah Light Sprout

- Light sprout root initials are moderate in frequency.
- Light sprout tip anthocyanin coloration intensity is absent.
- Light sprout general shape is conical.

Exhibit B. Document B-2**Distinctive Character:**

- Wallowa Russet produces a higher percent of US No. 1 grade tubers than Russet Burbank.
- Wallowa Russet tubers tend to have a higher specific gravity (an indicator of starch content and fry quality) than either Russet Burbank or Russet Norkotah.
- Wallowa Russet usually produces a lighter, more desirable fry color than Russet Burbank.
- Wallowa Russet tubers have fewer growth cracks than Russet Burbank.

Table 1. Yield and Related Characteristics of Wallowa Russet, Russet Burbank, and Russet Norkotah at Hermiston, Oregon, 1996-2000 (analysis of pooled means).

Variety	Total Cwt./Acre	No. 1 Cwt./Acre	% U.S. No. 1	Sp. Grav. ¹	Oz./ Tuber	Fry ² Color	Tuber L/W	Eye ³ Depth	Growth Cracks ⁴
Wallowa Russet	714a	560a	78.3a	1.0773a	8.02a	36.9a	1.76b	4.10a	4.60a
Russet Burbank	605b	310b	50.7c	1.0736b	7.06b	30.0b	1.86a	3.90b	3.55b
Russet Norkotah	485c	358b	70.9b	1.0656c	6.53b	30.8b	1.78b	4.05a	4.90a
LSD, 0.05 ⁵	57.2	51.4	5.83	0.0016	0.79	1.52	0.05	0.18	0.33
Var*Yr Interaction ⁶	*	**	**	**	N.S.	*	N.S.	N.S.	N.S.

¹Weight in air/weight in water method.

²Light reflectance; higher numbers indicate desirable lighter color.

³Visual rating: 1 = deep; 5 = shallow.

⁴Visual rating: 1 = severe; 5 = minor or none.

⁵LSD = Least Significant Difference at the 0.05 probability level.

⁶Var*Yr = Variety*Year interaction. N.S. = not significantly different at the 0.05 level; * = significant at the 0.05 level; ** = significant at the 0.01 level.

Note: Tables 1 and 2 show significant variety*year interactions for yield parameters, but most of the variation is due to Var*Yr interaction for the varieties Russet Burbank and Russet Norkotah.

See Table 2 for additional data on the individual Hermiston Trials, 1996-2000.

Exhibit B, Document B-2 (continued)**Table 2. Yield and Related Characteristics of Wallowa Russet, Russet Burbank, and Russet Norkotah at Hermiston, Oregon, 1996-2000 (individual trial data).**Trial Information:

Location: OSU Experiment Station, Hermiston, OR

Plot Size: Four replications of single rows spaced 34 inches apart; with about 33 hills per replication, spaced approximately 9.5 inches apart.

Planting Date: Early to mid-April

Harvest Date: Late September

Tuber evaluation: a) Yield components and specific gravity: At grading, shortly after harvest.

b) Fry color: Early December, after about 2.5 months in storage at 48°F.

Year 1996

Variety	Total Cwt/A	U.S. No. 1 (Cwt/A)			Yield (Cwt/A)			Percent U.S. #1	Oz./ Tub.	Sp. Grav.*	Fry Color**	L/W Ratio***	Growth Cr. ****
		Total	4-12 oz	>12 oz	<4 oz	Twos	Culls						
AO87277-6	732.61	619.59	463.86	155.73	100.55	3.32	9.14	84.62	7.28	1.083	41.68	1.78	5.00
Russet Norkotah	378.77	248.30	235.01	13.30	116.34	2.99	11.14	65.27	5.43	1.064	36.75	1.86	4.88
Russet Burbank	640.20	450.57	381.10	69.47	107.03	22.94	59.67	69.67	7.53	1.078	32.68	1.81	3.63
LSD (0.05)	135.01	151.98	118.34	68.15	NS	8.70	48.75	12.83	1.80	0.004	2.39	NS	1.13

Year 1997

Variety	Total Cwt/A	U.S. No. 1 (Cwt/A)			Yield (Cwt/A)			Percent U.S. #1	Oz./ Tub.	Sp. Grav.	Fry Color	L/W Ratio	Growth Cr.
		Total	4-12 oz	>12 oz	<4 oz	Twos	Culls						
AO87277-6	599.65	471.68	442.59	29.09	106.20	8.14	13.63	78.42	6.15	1.076	35.83	1.73	4.75
Russet Norkotah	463.70	326.58	307.80	18.78	127.81	4.32	4.99	70.43	4.88	1.069	28.25	1.83	5.00
Russet Burbank	587.52	323.43	314.95	8.48	214.40	23.77	25.93	55.06	4.28	1.073	29.85	1.91	4.50
LSD (0.05)	96.40	61.30	75.80	NS	24.54	NS	NS	6.42	0.40	0.004	5.63	0.14	NS

Exhibit B, Document B-2 (continued)

Year 1998

Variety	Total Cwt/A	U.S. No. 1 (Cwt/A)			Yield (Cwt/A)			Percent U.S. #1	Oz./ Tub.	Sp. Grav.	Fry Color	L/W Ratio	Growth Cr.
		Total	4-12 oz	>12 oz	<4 oz	Twos	Culls						
AO87277-6	787.46	669.62	500.43	169.19	37.06	55.43	25.35	85.12	8.40	1.075	36.00	1.70	4.50
Russet Norkotah	434.20	298.66	295.84	2.83	114.10	8.39	13.05	60.47	5.48	1.066	32.85	1.70	5.00
Russet Burbank	603.06	279.55	191.38	88.17	61.49	143.60	118.42	45.67	7.43	1.071	27.50	1.78	3.63
LSD (0.05)	170.92	165.02	166.05	88.67	20.35	46.11	31.56	25.44	NS	0.005	4.44	NS	0.80

Year 1999

Variety	Total Cwt/A	U.S. No. 1 (Cwt/A)			Yield (Cwt/A)			Percent U.S. #1	Oz./ Tub.	Sp. Grav.	Fry Color	L/W Ratio	Growth Cr.
		Total	4-12 oz	>12 oz	<4 oz	Twos	Culls						
AO87277-6	664.05	470.93	354.42	116.51	65.32	75.45	52.35	71.18	7.83	1.078	42.90	1.69	4.50
Russet Norkotah	518.46	394.64	312.95	81.69	62.82	55.43	5.57	76.10	6.70	1.068	35.93	1.73	5.00
Russet Burbank	596.57	258.94	156.48	102.46	87.26	137.28	113.10	43.56	6.80	1.077	37.00	1.86	3.00
LSD (0.05)	133.93	78.09	98.21	NS	11.14	63.09	85.41	9.79	NS	0.005	4.12	0.08	0.58

Exhibit B, Document B-2 (continued)

Year 2000

Variety	Total Cwt/A	U.S. No. 1 (Cwt/A)			Yield (Cwt/A)			Percent U.S. #1	Oz./ Tub.	Sp. Grav.	Fry Color	L/W Ratio	Growth Cr.
		Total	4-12 oz	>12 oz	<4 oz	Twos	Culls						
AO87277-6	788.04	569.15	285.03	284.12	37.48	114.01	67.39	72.02	10.45	1.075	28.08	1.90	4.25
Russet Norkotah	629.32	521.62	355.17	166.45	34.57	64.07	9.06	82.19	10.18	1.062	20.43	1.79	4.63
Russet Burbank	599.82	236.09	180.83	55.26	63.65	91.41	208.66	39.49	9.28	1.069	23.08	1.95	3.00
LSD (0.05)	NS	169.95	NS	106.86	25.21	33.59	48.29	7.25	NS	0.003	4.51	0.11	1.23

*Weight in air, weight in water method.

**1 Light reflectance; higher numbers indicate lighter, more desirable colors.

***Tuber length divided by tuber width; 1 = round; 2 = long.

****1-5 visual rating, 5 = best (least affected).

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY # 200200252
Potato (*Solanum tuberosum* L.)

INSTRUCTIONS

The Objective Description Form:

The objective description form lists characteristics to be used as the basis for developing the description of potato varieties. It is designed to guide the applicant in describing a variety in detail so a meaningful comparison with other potato varieties can be accomplished. It is recommended that this form be completed in as much detail as possible to ensure an accurate description. Please fill in the requested data and place the appropriate number that describes the varietal characters typical of this potato variety and the reference varieties in the respective boxes.

Test Guidelines:

Any statistical and trial (field test) data that may be necessary to support the variety description should be attached to this form. Please include for trial data the plot size, number of replications, number of plants, plant spacing, trial locations and growing periods. Trials should normally be conducted at one place, in the region that the variety has been adapted for, with a minimum of one growing period in the United States. All comparative data should be determined from varieties entered in the same trials. The size of the plots should be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made at the end of the growing period. As a minimum, each test should include a total of 60 plants which should be divided between two or more replicates. Separate plots for observation and measuring can only be used if they have been subject to similar environmental conditions. To determine color for a plant or plant parts a recognized standard color chart must be used such as the Royal Horticultural Society (RHS) Color Chart or Munsell Color Chart (MCC).

Reference Varieties:

The application variety should be compared to at least one reference variety preferably a set of reference varieties. The reference varieties should be market class standard varieties currently grown in the United States and or the variety (ies) most similar. The following varieties are recommended as market class standards to be used as reference varieties:

Yellow-flesh table-stock	Yukon Gold
Round-white table-stock	Superior
Chip-processing	Atlantic, Snowden, Norchip
Frozen-processing	Russet Burbank
Russet table-stock	Russet Burbank, Russet Norkotah, Goldrush
Red table-stock	Red Pontiac, Red Norland, Red Lasoda

If the applicant does not use one of the recommended reference varieties by the PVP office, a complete description of the reference variety should be submitted by the applicant (Exhibit C).

Characteristics:

Light sprout characteristics are supplied in **Figure 1**. The plant type and growth habit characteristics are collected at early first bloom. **Figure 2** is supplied to help visualize the growth habit. For this descriptor, look at the stems rather than the stems and foliage. Plant maturity is measured at natural vine senescence.

Stem characteristics are also collected at early bloom. Stem anthocyanin coloration is divided into two descriptors: Location and intensity. **Figure 3** is supplied to give an example of stem wings.

Leaf characteristics are observed at early first bloom. Fully-developed leaves located on the middle third of the plant should be used. Leaf pubescence refers to general trichomes. **Figure 4** is supplied for examples of leaf silhouette. Leaf stipules are shown in **Figure 5** for visual definition. **Figure 6** is supplied to define leaf characteristics. **Figure 7** should be used to describe terminal and primary leaflet shape. **Figures 8 and 9** are used to describe the terminal and primary leaflet shape of tip and base, respectively. To measure the total number of primary leaflets pairs, collect 10 fully developed petioles (with leaves attached from each replication) and take the average number of secondary and tertiary leaflets. Glandular trichomes should be described in the Additional Comments and Characteristics (Descriptor 15).

Inflorescence characteristics should be measured at early first bloom. **Figures 10, 11 and 12** are supplied to describe anther and stigma shape, respectively. Corolla, calyx, anther, stigma, and pollen should be observed on newly opened flowers. Berry production should be based on field-grown plants rather than greenhouse plants.

Tuber characteristics should be observed following harvest. **Figures 13 and 14** are available to describe distribution of secondary color and tuber shape, respectively.

Disease and pest reactions should be based upon specific tests or statistical analysis rather than just field observations, rating 1 as Highly Resistance and 9 as Highly Susceptible, please follow the scale on each descriptor. Other diseases or pests reactions not requested can be described if it is felt that it would be helpful to determine novelty of the variety.

Quality characteristics should be described according to the market use.

If the plant is transgenic, this gene insertion(s) should be described.

Chemical identification and any other characteristics can be described if they are helpful in distinguishing the variety.

Legend:

V = Application Variety

R1-R4 = Reference Varieties

***** = Both the reference variety (ies) and application variety must be described for characteristics designated with an asterisk.

NAME OF APPLICANT (S) State of Oregon by/through STBHE acting on behalf of Oregon State University 9-17-2007	TEMPORARY OR EXPERIMENTAL DESIGNATION AO87277-6	VARIETY NAME Wallowa Russet
ADDRESS (Street and No., or RD No., City, State, Zip Code, and Country) Office of Technology Transfer Oregon State University 312 Kerr Administration Building Corvallis, OR 97331		FOR OFFICIAL USE ONLY PVPO NUMBER #200200252

REFERENCE VARIETIES: Enter the reference variety name in the appropriate box.

Application Variety (V)	Reference Variety 1 (R1)	Reference Variety 2 (R2)	Reference Variety 3 (R3)	Reference Variety 4 (R4)
Wallowa Russet	Russet Burbank	Russet Norkotah		

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

1. MARKET CHARACTERISTICS:

*MARKET CLASS:

1 = Yellow-flesh Tablestock 2 = Round-white Tablestock 3 = Chip-processing 4 = Frozen-processing
5 = Russet Tablestock 6 = Other _____

V	4,5	R1	4,5	R2	5	R3		R4	
---	-----	----	-----	----	---	----	--	----	--

2. LIGHT SPROUT CHARACTERISTICS: (See Figure 1)

*LIGHT SPROUT: GENERAL SHAPE

1 = Spherical 2 = Ovoid 3 = Conica 4 = Broad cylindrica 5 = Narrow cylindrical 6 = Other _____

V	4	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

*LIGHT SPROUT BASE: PUBESCENCE OF TIP

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	3	R1	4	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

*LIGHT SPROUT BASE: ANTHOCYANIN COLORATION

1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other(describe) _____

V	2	R1	2	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

*LIGHT SPROUT BASE: INTENSITY OF ANTHOCYANIN COLORATION (IF PRESENT)

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	3	R1	3	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

* LIGHT SPROUT TIP: HABIT

1 = Closed 2 = Intermediate 3 = Open

V	2	R1	1	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

2. LIGHT SPROUT CHARACTERISTICS: (continued)

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LIGHT SPROUT TIP: PUBESCENCE

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	3	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

LIGHT SPROUT TIP ANTHOCYANIN COLORATION

1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other(describe) _____

V	2	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

LIGHT SPROUT TIP: INTENSITY OF ANTHOCANIN COLORATION (IF PRESENT)

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	3	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

LIGHT SPROUT ROOT INITIALS: FREQUENCY

1 = Absent 2 = Some 3 = Abundant

V	3	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

3. PLANT CHARACTERISTICS:

GROWTH HABIT: (See Figure 2)

3 = Erect (>45° with ground) 5 = Semi-erect (30-45° with ground) 7 = Spreading

V	5	R1	5	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

TYPE:

1 = Stem (foliage open, stems clearly visible) 2 = Intermediate 3 = Leaf (Foliage closed, stems hardly visible)

V	2	R1	2	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

MATURITY: Days after planting (DAP) at vine senescence

V	122	R1	120	R2	100	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

PLANTING DATE:

V	MAY 15	R1	MAY 15	R2	MAY 15	R3		R4	
---	--------	----	--------	----	--------	----	--	----	--

*REGIONAL AREA:

1 = Pacific North West (WA, OR, ID, CO, CA) 2 = North Central (ND, WI, MI, MN, OH) 3 = North East (ME, NY, PA, NJ, MD, MA, RI)
 4 = Mid-Atlantic Erect (VI, NC, SC, South NJ, FL) 5 = South (LA, TX, AZ, NE) 6 = Canada
 7 = Europe 8 = England 9 = Latin America 10 = Brazil 11 = Other _____

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

MATURITY CLASS:

1 = Very Early (<100 DAP) 2 = Early (100-110 DAP) 3 = Mid-season (111-120 DAP) 4 = Late (121-130 DAP) 5 = Very Late (>130 DAP).

V	4	R1	3-4	R2	2	R3		R4	
---	---	----	-----	----	---	----	--	----	--

4. STEM CHARACTERISTICS: Measure at early first bloom

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*** STEM ANTHOCYANIN COLORATION:**

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very Strong

V	3	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

STEM WINGS: (See Figure 3)

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very Strong

V	5	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

5. LEAF CHARACTERISTICS:**LEAF COLOR:** (Observe fully developed leaves located on middle 1/3 of plant)

1 = Yellowing-green 2 = Olive-green 3 = Medium Green 4 = Dark Green 5 = Grey-green 6 = Other _____

V	3	R1	3	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

LEAF COLOR CHART VALUE: (Royal Horticulture Society Color Chart or Munsell Color Chart)
(Observe fully developed leaves located on middle 1/3 of plant and circle the appropriate color chart)

V	137A	R1	137A	R2	147A	R3		R4	
---	------	----	------	----	------	----	--	----	--

LEAF PUBESCENCE DENSITY:

1 = Absent 2 = Sparse 3 = Medium 4 = Thick 5 = Heavy

V	4	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

LEAF PUBESCENCE LENGTH:

1 = None 2 = Short 3 = Medium 4 = Long 5 = Very Long

V	2	R1	3	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

(Note Descriptor #15 can be used to describe the type and length of the glandular trichomes observed.)

*** LEAF SILHOUETTE:** (See Figure 4)

1 = Closed 3 = Medium 5 = Open

V	3	R1	5	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

PETIOLES ANTHOCYANIN COLORATION:

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very Strong

V	3	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

LEAF STIPULES SIZE: (See Figure 5)

1 = Absent 3 = Small 5 = Medium 7 = Large

V	3	R1	3	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

TERMINAL LEAFLET SHAPE (See Figures 6 and 7)

1 = Narrowly ovate 2 = Medium Ovate 3 = Broadly Ovate 4 = Lanceolate 5 = Elliptical 6 = Obovate 7 = Oblong 8 = Other _____

V	1	R1	1	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

5. LEAF CHARACTERISTICS: (continued)

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TERMINAL LEAFLET TIP SHAPE: (See Figures 6 and 8)

1 = Acute 2 = Cuspidate 3 = Acuminate 4 = Obtuse 5 = Other _____

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

* TERMINAL LEAFLET BASE SHAPE: (See Figure 9)

1 = Cuneate 2 = Acute 3 = Obtuse 4 = Cordate 5 = Truncate 6 = Lobed 7 = Other _____

V	4	R1	4	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

TERMINAL LEAFLET MARGIN WAVINESS:

1 = Absent 2 = Slight 3 = Weak 4 = Medium 5 = Strong

V	2	R1	2	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

NUMBER OF PRIMARY LEAFLET PAIRS: (See Figure 6)

AVERAGE:

V	5.7	R1	5.0	R2	5.8	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

RANGE:

V	5 to 6	R1	4 to 7	R2	5 to 6	R3	to	R4	to
---	--------	----	--------	----	--------	----	----	----	----

PRIMARY LEAFLET TIP SHAPE: (See Figures 6 and 8)

1 = Acute 2 = Cuspidate 3 = Acuminate 4 = Obtuse 5 = Other _____

V	3	R1	3	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY LEAFLET SIZE:

1 = Very Small 2 = Small 3 = Medium 4 = Large 5 = Very Large

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY LEAFLET SHAPE: (See Figures 6 and 7)

1 = Narrowly ovate 2 = Medium ovate 3 = Broadly ovate 4 = Lanceolate 5 = Elliptical 6 = Ovate 7 = Oblong 8 = Other _____

V	2	R1	1	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY LEAFLET BASE SHAPE: (See Figures 6 and 9)

1 = Cuneate 2 = Acute 3 = Obtuse 4 = Cordate 5 = Truncate 6 = Lobed 7 = Other _____

V	4	R1	4	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

NUMBER OF SECONDARY AND TERTIARY LEAFLET PAIRS: (See Figure 6)

AVERAGE:

V	6.6	R1	7.2	R2	10.9	R3		R4	
---	-----	----	-----	----	------	----	--	----	--

RANGE:

V	5 to 9	R1	6 to 8	R2	9 to 13	R3	to	R4	to
---	--------	----	--------	----	---------	----	----	----	----

5. LEAF CHARACTERISTICS: (continued)

#200200252

NUMBER OF INFLORESCENCE/PLANT:

AVERAGE:

V	3.9	R1	7.3	R2	3.2	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

RANGE:

V	3 to 6	R1	5 to 10	R2	2 to 4	R3	to	R4	to
---	--------	----	---------	----	--------	----	----	----	----

NUMBER OF FLORETS/INFLORESCENCE:

AVERAGE:

V	22.6	R1	18.6	R2	12.9	R3		R4	
---	------	----	------	----	------	----	--	----	--

RANGE:

V	14 to 29	R1	13 to 27	R2	8 to 15	R3	to	R4	to
---	----------	----	----------	----	---------	----	----	----	----

* COROLLA INNER SURFACE COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure predominant color of newly open flower and circle the appropriate color chart)

V	82C	R1	155A	R2	155C	R3		R4	
---	-----	----	------	----	------	----	--	----	--

* COROLLA OUTER SURFACE COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure predominant color of newly open flower and circle the appropriate color chart)

V	82C	R1	155A	R2	155C	R3		R4	
---	-----	----	------	----	------	----	--	----	--

* COROLLA INNER SURFACE COLOR: (Measure predominant color of newly open flower, if flowers are bi-color please use the ratio codes)
 1 = White 2 = Red-violet 3 = Blue-violet 4 = Cream 5 = Red-purple 6 = Blue 7 = Pink 8 = Pink-white 9 = Purple 10 = Violet
 11 = Purple-violet 13 = Violet-White 1:1 14 = Violet-White 1:3 15 = Violet-White 3:1 16 = Violet-White Halo 17 = Pink-White 1:1 18 = Pink-White 1:3
 19 = Pink-White 3:1 20 = Pink-White Halo 21 = RedViolet-White 1:1 22 = RedViolet-White 1:3 23 = RedViolet-White 3:1
 24 = RedViolet-White Halo 25 = BlueViolet-White 1:1 26 = BlueViolet-White 1:3 27 = BlueViolet-White 3:1 28 = BlueViolet-White Halo
 12 = Other

V	11	R1	1	R2	1	R3		R4	
---	----	----	---	----	---	----	--	----	--

COROLLA SHAPE: (See Figure 10)

1 = Very rotate 2 = Rotate 3 = Pentagonal 4 = Semi-stellate 5 = Stellate

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

6. INFLORESCENCE CHARACTERISTICS:

CALYX ANTHOCYANIN COLORATION:

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very strong

V	3	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

ANTHER COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure when newly opened flower is fully expanded and circle the appropriate color chart)

V	17A	R1	17B	R2	17B	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

ANTHER SHAPE: (See Figure 11)

1 = Broad cone 2 = Narrow cone 3 = Pear-shaped cone 4 = Loose 5 = Other

V	1	R1	3	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

6. INFLORESCENCE CHARACTERISTICS: (continued)

#200200252

POLLEN PRODUCTION:

1 = None 3 = Some 5 = Abundant

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

STIGMA SHAPE: (See Figure 12)

1 = Capitate 2 = Clavate 3 = Bi-lobed

V	1	R1	2	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

STIGMA COLOR CHART VALUE: (Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart))

V	137C	R1	137C	R2	146B	R3		R4	
---	------	----	------	----	------	----	--	----	--

BERRY PRODUCTION: (Under field conditions)

1 = Absent 3 = Low 5 = Moderate 7 = Heavy 9 = Very Heavy

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

7. TUBER CHARACTERISTICS:

* PREDOMINANT SKIN COLOR:

1 = White 2 = Light Yellow 3 = Yellow 4 = Buff 5 = Tan 6 = Brown 7 = Pink 8 = Red 9 = Purplish-red
10 = Purple 11 = Dark purple-black 12 = Other _____

V	5	R1	5	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

PREDOMINANT SKIN COLOR CHART VALUE: (Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart))

V	164B	R1	164B	R2	164B	R3		R4	
---	------	----	------	----	------	----	--	----	--

SECONDARY SKIN COLOR:

1 = Absent 2 = Present (please describe)

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

SECONDARY SKIN COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

SECONDARY SKIN COLOR DISTRIBUTION: (See Figure 13)

1 = Eyes 2 = Eyebrows 3 = Splashed 4 = Scattered 5 = Spectacled 6 = Stippled 7 = Other _____

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

SKIN TEXTURE:

1 = Smooth 2 = Rough (flaky) 3 = Netled 4 = Russetted 5 = Heavily russetted 6 = Other _____

V	4	R1	4	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

#200200252

* TUBER SHAPE: (See Figure 14)

1 = Compressed 2 = Round 3 = Oval 4 = Oblong 5 = Long 6 = Other _____

V	5	R1	5	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

TUBER THICKNESS:

1 = Round 2 = Medium thick 3 = Slightly flattened 4 = Flattened 5 = Other _____

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

TUBER LENGTH (mm):

AVERAGE:

V	125	R1	112	R2	130	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

RANGE:

V	102 to 159	R1	81 to 140	R2	95 to 165	R3	to	R4	to
---	------------	----	-----------	----	-----------	----	----	----	----

STANDARD DEVIATION:

V	16.7	R1		R2	21.4	R3		R4	
---	------	----	--	----	------	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN: (g):

V	5,000 GR.	R1	18,000 GR.	R2	5,000 GR.	R3		R4	
---	-----------	----	------------	----	-----------	----	--	----	--

TUBER WIDTH (mm)

AVERAGE:

V	68	R1	62	R2	66	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	54 to 83	R1	53 to 74	R2	54 to 83	R3	to	R4	to
---	----------	----	----------	----	----------	----	----	----	----

STANDARD DEVIATION:

V	7.4	R1		R2	9.0	R3		R4	
---	-----	----	--	----	-----	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN (g):

V	5,000 GR.	R1	18,000 GR.	R2	5,000 GR.	R3		R4	
---	-----------	----	------------	----	-----------	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

#200200252

TUBER THICKNESS (mm):

AVERAGE:

V	55	R1	53	R2	54	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	44 to 70	R1	43 to 61	R2	41 to 70	R3	to	R4	to
---	----------	----	----------	----	----------	----	----	----	----

STANDARD DEVIATION:

V	7.6	R1		R2	7.1	R3		R4	
---	-----	----	--	----	-----	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN (g):

V	5,000	R1	18,000	R2	5,000	R3		R4	
---	-------	----	--------	----	-------	----	--	----	--

TUBER EYE DEPTH:

1 = Protruding 3 = Shallow 5 = Intermediate 7 = Deep 9 = Very deep

V	3	R1	5	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

TUBER LATERAL EYES:

1 = Protruding 3 = Shallow 5 = Intermediate 7 = Deep 9 = Very deep

V	3	R1	5	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

NUMBER EYE/TUBER:

AVERAGE:

V	12	R1	20	R2	17	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	9 to 17	R1	16 to 28	R2	14 to 23	R3	to	R4	to
---	---------	----	----------	----	----------	----	----	----	----

DISTRIBUTION OF TUBER EYES:

1 = Predominantly apical 2 = Evenly distributed

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

PROMINENCE OF TUBER EYEBROWS:

1 = Absent 2 = Slight prominence 3 = Medium prominence 4 = Very prominent 5 = Other _____

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

#200200252

PREDOMINANT TUBER FLESH COLOR

1 = White 2 = Light Yellow 3 = Yellow 4 = Buff 5 = Tan 6 = Brown 7 = Pink 8 = Red 9 = Purplish-red
 10 = Purple 11 = Dark purple-black 12 = Other _____

V	I	R1	I	R2	I	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY TUBER FLESH COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

V	155B	R1	155B	R2	155B	R3		R4	
---	------	----	------	----	------	----	--	----	--

SECONDARY TUBER FLESH COLOR:

1 = Absent 2 = Present, please describe: _____

V	I	R1	I	R2	I	R3		R4	
---	---	----	---	----	---	----	--	----	--

SECONDARY TUBER FLESH COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

NUMBER OF TUBERS/PLANT:

1 = Low (<8) 2 = Medium (8-15) 3 = High (>15)

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

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8. DISEASES CHARACTERISTICS:

DISEASES REACTION: 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lesions in Number and Size
 4 = Moderately Resistance 5 = Intermedia Susceptible 6 = Moderate Susceptible
 7 = Susceptible 9 = Highly Susceptible

LATE BLIGHT: (Phytophthora)

V	7	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

EARLY BLIGHT: (Alternaria)

V	7	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

SOFT ROT (Erwinia)

V	9	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

COMMON SCAB (Streptomyces)

V	5	R1	1	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

POWDERY SCAB (Spongospora)

V	0	R1	0	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

DRY ROT (Fusarium)

V	7	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO LEAF ROLL VIRUS (PLRV)

V	7	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

8. DISEASES CHARACTERISTICS: (continued)

#200200252

POTATO VIRUS X (PVX)

V	0	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO VIRUS Y (PVY)

V	3	R1	5	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO VIRUS M (PVM)

V	0	R1	0	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO VIRUS A (PVA)

V	0	R1	0	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

GOLDEN NEMATODE (Globodera)

V	0	R1	0	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

ROOT - KNOT NEMATODE (Meloidogyne)

V	7	R1	7	R2	0	R3		R4	
---	---	----	---	----	---	----	--	----	--

OTHER DISEASE

CORKY RINGSPOT

V	3	R1	9	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

PHYSIOLOGICAL DISORDER

1 = Malformed shape
6 = Blackheart2 = Tuber cracking
7 = Internal sprouting3 = Feathering
8 = Other

4 = Hollow heart

5 = Internal necrosis

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

9. PESTS CHARACTERISTICS:

PEST REACTION: 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lesions in Number and Size
4 = Moderately Resistance 5 = Intermedia Susceptible 6 = Moderate Susceptible
7 = Susceptible 9 = Highly Susceptible

COLORADO POTATO BEETLE (CPB) (*Leptinotarsa*)

V	0	R1		R2		R3		R4	
---	---	----	--	----	--	----	--	----	--

GREEN PEACH APHID (*Myzus*)

V	0	R1		R2		R3		R4	
---	---	----	--	----	--	----	--	----	--

OTHER:

V	0	R1		R2		R3		R4	
---	---	----	--	----	--	----	--	----	--

OTHER:

V	0	R1		R2		R3		R4	
---	---	----	--	----	--	----	--	----	--

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10. GENE TRAITS:

INSERTION OF GENES: 1 = YES 2 = NO ☒

IF YES, describe the gene(s) introduced or attach information:

11. QUALITY CHARACTERISTICS:

CHIEF MARKET:

SPECIFIC GRAVITY (wt. air/wt. air - wt. water)

1 = <1.060 2 = 1.060-1.069 3 = 1.070-1.079 4 = 1.080-1.089 5 = >1.090

V 4

R1 4

R2 3

R3

R4

TOTAL GLYCOALKALOID CONTENT (mg./100 g. fresh tuber)

V 7.6

R1 6.1

R2

R3

R4

OTHER QUALITY CHARACTERISTICS: Describe any other quality characteristics that may aid in identification, (e.g., chip-processing, french fry processing, baking, boiling, after-cooking darkening). Please attach data and corresponding protocol.

EXCELLENT FROZEN PROCESSING; LIGHTER-COLORED FRIES THAN
RUSSET BURBANK. FAIRLY RESISTANT TO DARK ENDS.

12. CHEMICAL IDENTIFICATION:

Describe chemical traits of the candidate variety that aid in its identification (e.g., protien or DSN electrophoresis). Please attach data and the corresponding protocol.

13. FINGER PRINTING MARKERS:

ISOZYMES 1 = YES 2 = NO ☒

IF YES, attach information

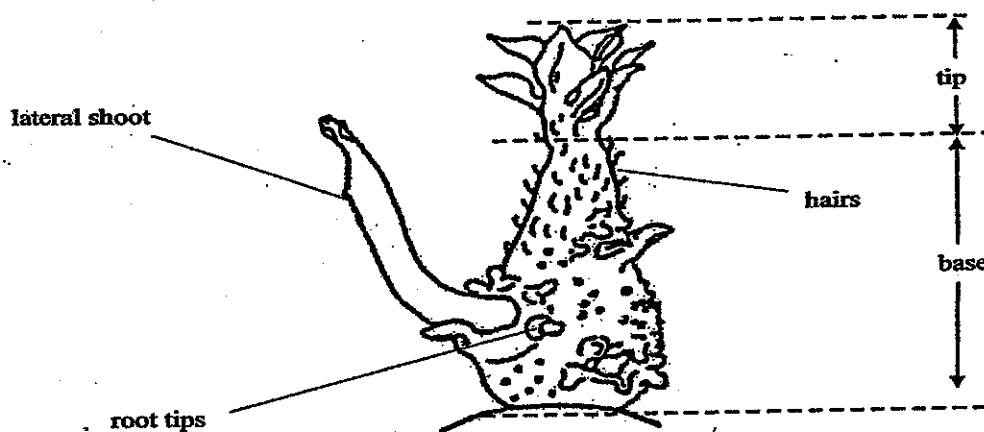
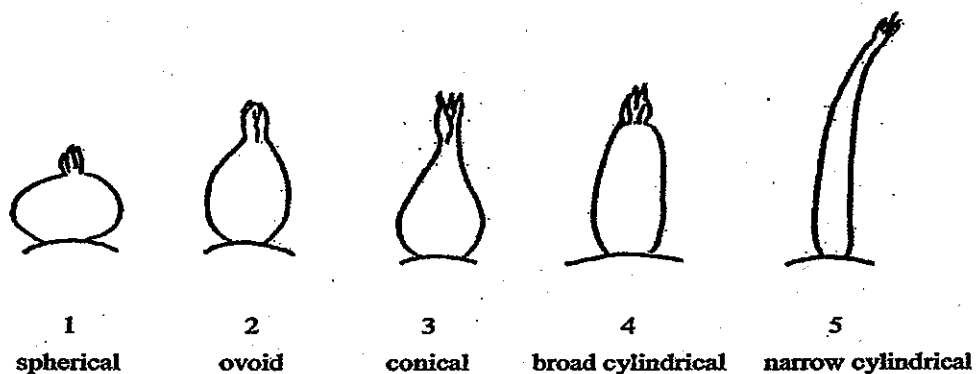
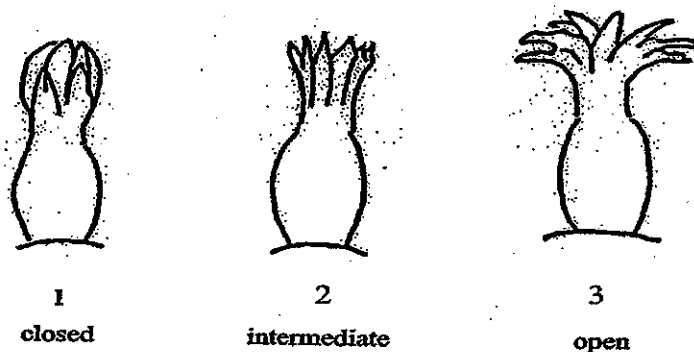
14. DNA PROFILE: 1 = YES 2 = NO ☒

IF YES, attach information

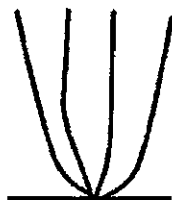
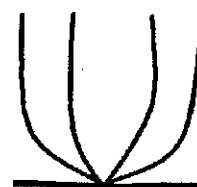
15. ADDITIONAL COMMENTS AND CHARACTERISTICS:

Include any additional descriptors that would be useful in distinguishing the candidate variety.

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Figure 1: Light sprout**Light sprout dissection****Light sprout shape****Light sprout tip habit**

The characteristic should be observed after about 10 weeks to obtain a good differentiation in the collection.

Figure 2: Growth Habit**Erect****Semi Erect****Spreading**

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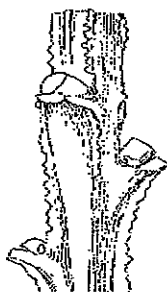
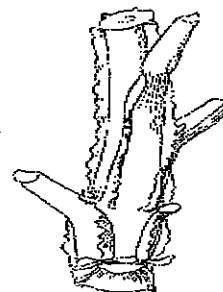
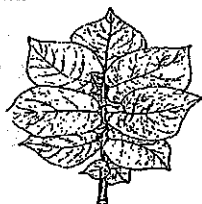
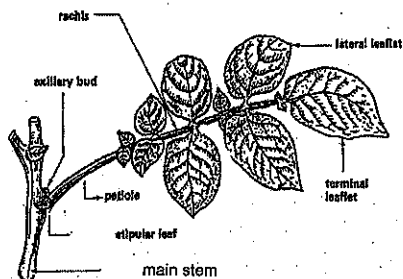
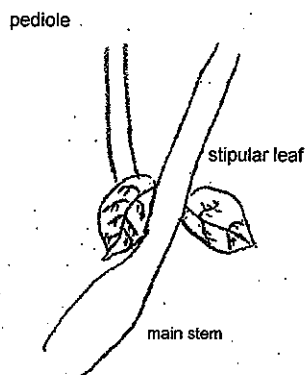
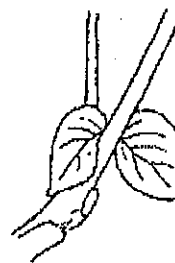
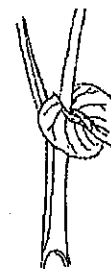
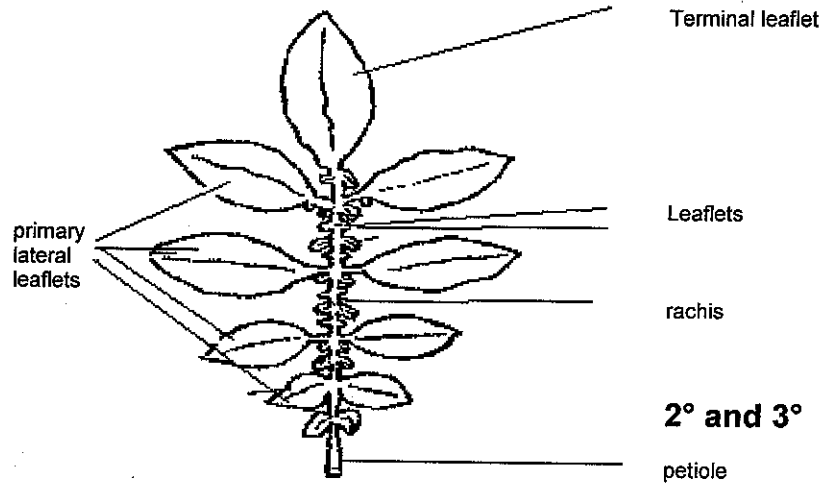
Figure 3: Stem Wings**Weak****Medium****Strong****Figure 4: Leaf Silhouette****Closed****Medium****Open****Figure 5: Leaf Stipules****General structures****Small stipular leaf****Medium stipular leaf****Large stipular leaf**

Figure 6: Leaf Dissection



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Figure 7: Terminal Leaflet Shape/Primary Leaflet Shape

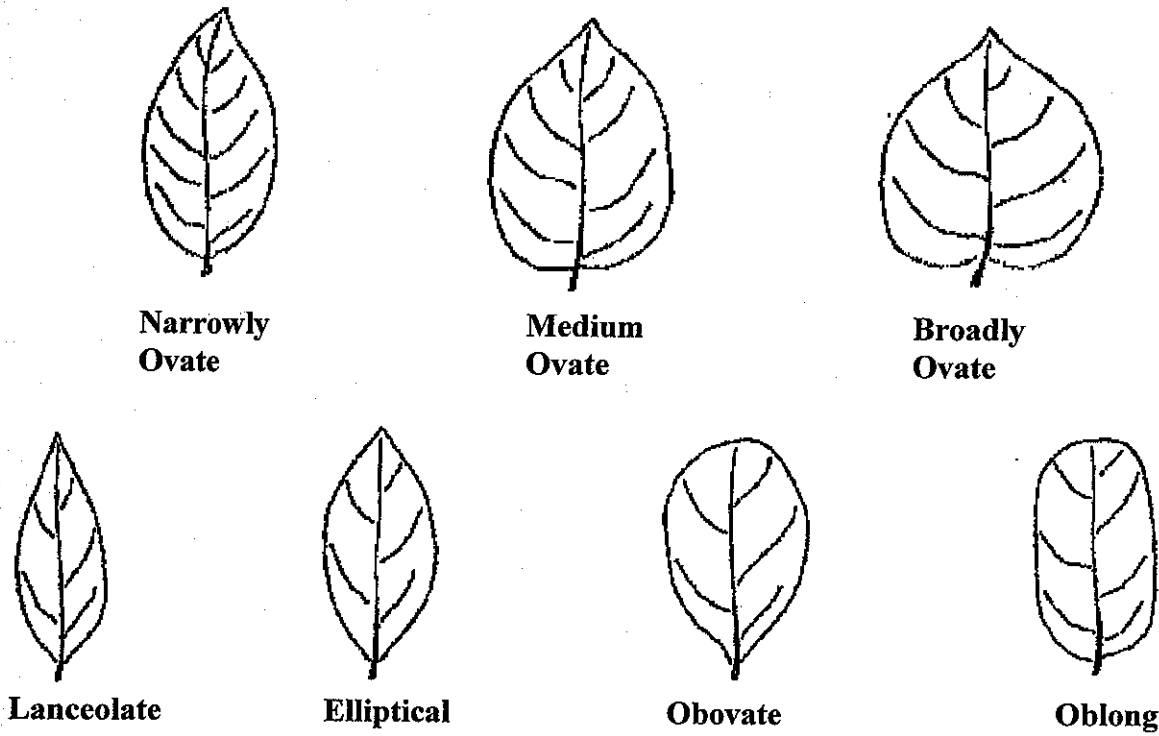


Figure 8: Terminal Leaflet Shape of Tip/Primary Leaflet Shape of Tip

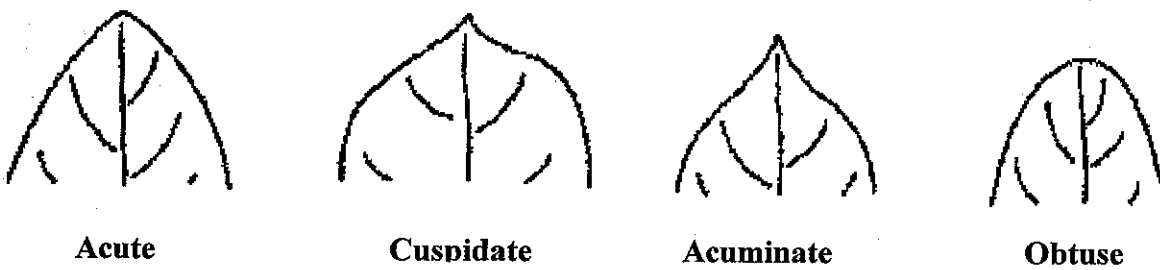


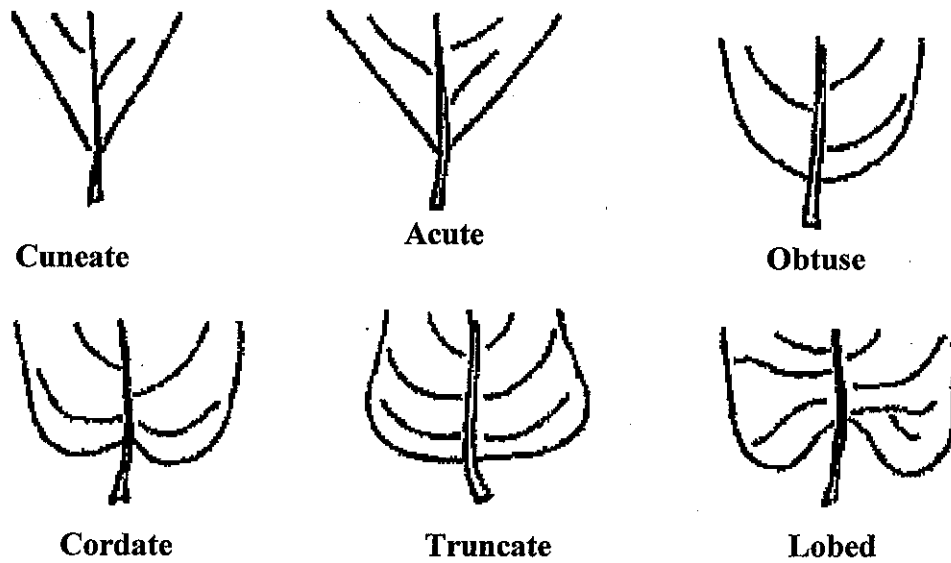
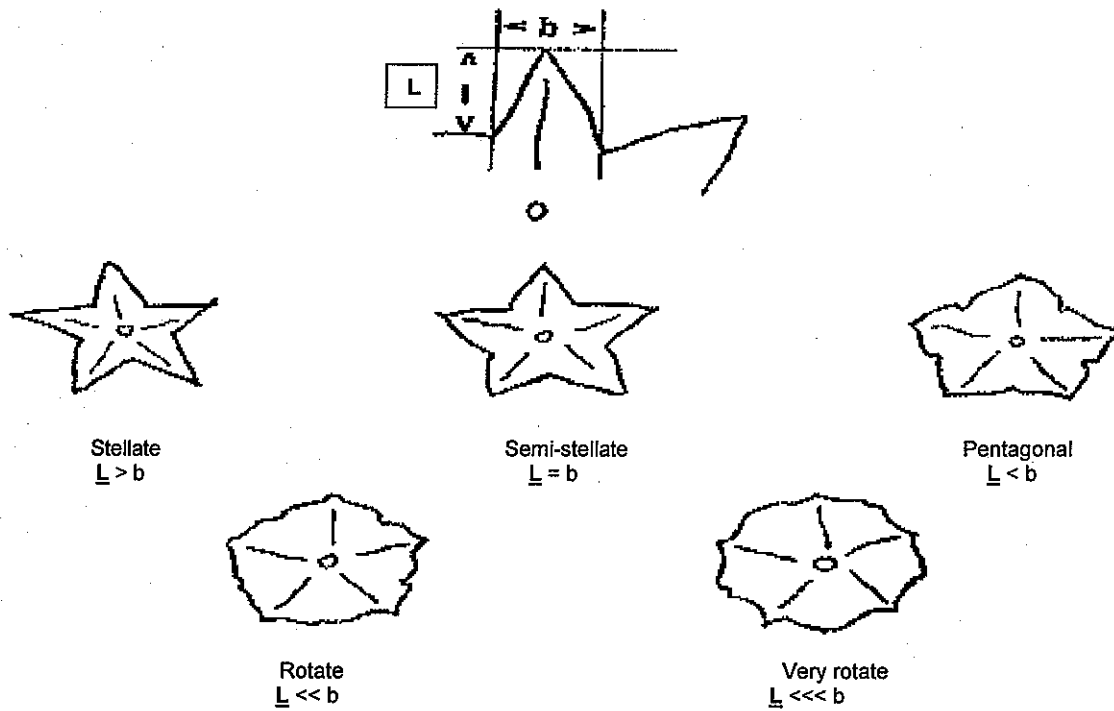
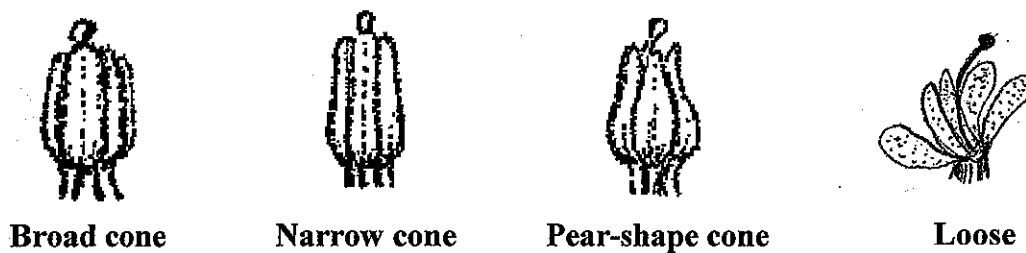
Figure 9: Terminal Leaflet Shape of Base/Primary Leaflet Shape of Base**Figure 10: Corolla Shape****Figure 11: Anther Shape**

Figure 12: Stigma Shape

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Capitate

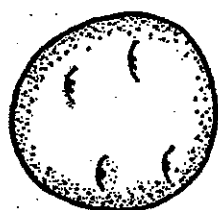


Clavate

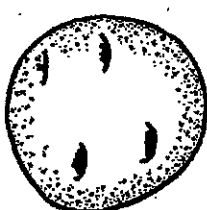


Bi-lobed

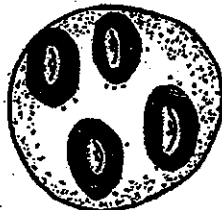
Figure 13: Distribution of Secondary Skin Tuber Color



Eyes



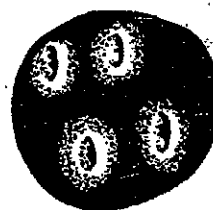
Eyebrows



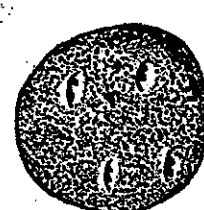
Splashed



Scattered



Spectacled



Stippled

Figure 14: Tuber Shape



Compressed



Round



Oval



Oblong



Long

References:

Huaman, Z. 1986. Systematic botany and morphology of the potato. Technical information Bulletin 6. International Potato Center, Lima, Peru.

Huaman, Z., Williams, J.T., Salhuana, W. and Vincent, L. Descriptors for the cultivated potato and the maintenance and distribution of germplasm collections. 1977. International Board for Plant Genetic Resources. Rome, Italy.

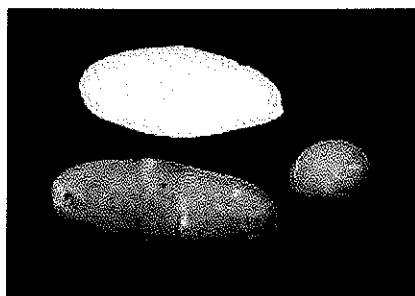
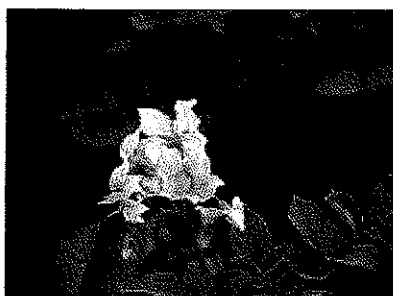
Potato (*Solanum tuberosum* L.) Guidelines for the conduct of tests for distinctness, uniformity and stability. International union for the protection of new varieties of plants (UPOV). 2004-03-31.

Exhibit D: Additional Description of the Variety (optional)

1. ~~Document D-1: Additional Statements of Distinctness~~ *Move to Esh B
per e-mail Dec 10, 2007*
2. Document D-2: Light Sprout Photographs
3. Wallowa Russet (AO87277-6) Performance and Characteristics *LMC
12-11-2007*
Mosley, A.R., et al. 2002.
<http://oregonstate.edu/potatoes/AO87277-6.pdf>
4. Variety Profile: "Wallowa Russet" (one page)
Adapted from the Variety Description
<http://oregonstate.edu/potatoes/WallowProfile.pdf>
5. "Wallowa Russet: A Full-Season Long Russet for Processing and Fresh Market"
Hane, D.C., et al. 2003.
American Journal of Potato Research (2003) 80:289-294

WALLOWA RUSSET (AO87277-6)**Performance and Characteristics**

**A. Mosley, B. Charlton, K. Rykbost, S. James, D. Hane,
F. Rhodes, S. Shock, E. Eldredge and S. Yilma**



Wallowa Russet, tested under the pedigree number AO87277-6, was selected in 1989 at Powell Butte, Oregon from a cross between A82758-3 and Ranger Russet (Figure 1) performed by Dr. J.J. Pavek, USDA-ARS, Aberdeen, Idaho in 1987. Wallowa was extensively tested in Oregon statewide variety trials at four locations from 1993 to 2000, in tri-state trials at three locations in 1996, and in western regional trials at 14 locations from 1997 to 1999. Seed was initially multiplied at the Central Oregon Agricultural Experiment Station at Powell Butte.

Wallowa produces similar to slightly higher total yields than Russet Burbank, but significantly higher yields of U.S. No.1s

under a wide range of soil and climatic conditions (Tables 1,4,5). Wallowa tubers are similar to those of Russet Burbank in length/width ratio (Tables 3,4) but average about one ounce heavier.

Wallowa tubers have higher specific gravity than Russet Burbank (Tables 1,4,5). Internal defects, including hollow heart and brown center, vascular discoloration, and internal brown spot, and external growth cracks and knobs occur less frequently in Wallowa than Russet Burbank (Tables 2,6). Wallowa and Russet Burbank are similar in susceptibility to blackspot bruise but Wallowa shows somewhat more shatter bruise. Wallowa has shown less susceptibility to sugar ends than

Russet Burbank in Oregon statewide trials (Table 2), about the same in western regional trials (Table 10), and slightly more in one year of tri-state trials (Table 4). In tri-state and regional trials, Wallowa has fried slightly lighter from both 40 and 45 °F storage than Russet Burbank (Tables 4,10). Wallowa has shown higher levels of tuber protein and than Russet Burbank in western regional trials (Table 9). Russet Burbank has shown slightly lower tuber vitamin C and total glycoalkaloids than Wallowa Russet. Taste panel evaluations of baked samples at Aberdeen, Idaho indicate that Wallowa and Russet Burbank are similar in color, texture, flavor, and overall quality in blind samples.

Wallowa Russet and Russet Burbank show similar vine maturity (Tables 3,7). Disease susceptibility is also similar except Wallowa is somewhat more susceptible to *Erwinia* soft rot and less susceptible to net necrosis from the Potato Leafroll Virus than Russet Burbank (Table 8).

Certified seed of Wallowa Russet is available from Oregon seed growers. Limited quantities of *in vitro* and greenhouse stocks can be ordered from the Foundation Potato Seed Program at Oregon State University.

Table 1. Yield and quality characteristics of AO87277-6, and R. Burbank in Oregon Statewide Trials, 1994 - 1999.

Entry	Location	Number of Years	Yield (cwt/acre)						No. 2's & Culls	%	Oz/ Tuber	Spec. Grav.	Fry Color ¹
			US No. 1										
			Total	4-12 oz	>12 oz	Total	<4 oz						
AO87277-6	Hermiston	5	724	449	142	591	69	64	81	7.7	1.078	39.3	
	Klamath Falls	6	481	297	117	414	36	31	86	—	1.087	—	
	Ontario	6	550	315	120	435	53	53	79	—	1.091	46.6	
	Powell Butte	6	342	205	71	276	43	23	81	7.0	1.088	33.7	
	Avg.		524	317	113	429	50	43	82	7.4	1.086	39.9	
R. Burbank	Hermiston	5	663	271	69	339	111	212	51	6.8	1.074	31.8	
	Klamath Falls	6	476	267	44	312	75	90	66	—	1.085	—	
	Ontario	6	490	243	31	274	97	102	56	—	1.079	37.7	
	Powell Butte	6	355	180	30	210	83	64	59	5.2	1.086	29.3	
	Avg.		496	240	44	284	92	117	58	6.0	1.081	32.9	

Table 2. Physiological defects of AO87277-6, and R. Burbank in Oregon Statewide Trials, 1994 - 1999.

Entry	Location	Number of Years	Internal Defects ²					External Defects ³	
			HH&BC	BS	VD	IBS	Sugar Ends	GC	SB
					----- % -----				Rating Scale ⁴
AO87277-6	Hermiston	5	0.2	4.4	4.2	1.2	1.0	4.7	4.2
	Klamath Falls	6	5.3	5.0	0.0	0.0	0.0	4.7	4.9
	Ontario	6	0.0	4.8	0.8	0.0	0.5	5.0	3.9
	Powell Butte	6	2.5	4.7	10.2	0.0	2.3	4.8	4.2
	Avg.		2.0	4.7	3.8	0.3	1.0	4.8	4.3
R. Burbank	Hermiston	5	8.0	3.6	10.3	6.0	7.5	3.7	4.9
	Klamath Falls	6	8.2	5.0	13.0	1.0	0.0	3.7	5.0
	Ontario	6	0.3	5.0	2.1	0.0	14.5	3.7	4.6
	Powell Butte	6	18.2	4.6	12.8	1.3	2.7	4.2	4.4
	Avg.		8.7	4.6	9.6	2.1	6.2	3.8	4.7

¹ Locations: Hermiston, Powell Butte, Klamath Falls, Ontario (34 location years)² HH = Hollow Heart; BC = Brown Center; BS = Blackspot Bruise; VD = Vascular Discoloration;
IBS = Internal Brown Spot³ GC = Growth Cracks; SB = Shatter Bruise⁴ Scale: 1 = Severe; 5 = None

Table 3. Morphological characteristics of AO87277-6, and R. Burbank in Oregon Statewide Trials, 1994 - 1999.

Entry	Location ¹	Number of Years	Vine Size ²	Vine Mat. ³	Tuber Shape ⁴	Degree Russ. ⁵	Skin Color ⁶	Eye Depth ⁷	Size Unif. ⁸	Shape Unif. ⁹	L/W Ratio ¹⁰
AO87277-6	Hermiston	4	---	2.9	---	3.9	4.1	4.3	---	4.2	1.70
	Klamath Falls	6	2.7	3.4	4.5	4.4	5.0	4.4	3.9	3.9	---
	Ontario	6	---	---	4.1	3.6	4.0	3.5	---	---	2.00
	Powell Butte	6	2.2	3.4	3.9	3.4	3.4	3.8	3.4	3.5	1.80
	Avg.		2.5	3.2	4.2	3.8	4.1	4.0	3.7	3.9	1.83
R. Burbank	Hermiston	4	---	2.5	---	3.7	3.9	3.9	---	3.5	1.90
	Klamath Falls	6	3.4	2.9	4.6	4.3	5.0	4.0	3.1	2.9	---
	Ontario	6	---	---	4.5	3.5	3.9	2.9	---	---	2.10
	Powell Butte	6	2.2	3.4	4.0	3.5	3.4	3.3	3.1	2.9	1.90
	Avg.		2.8	2.9	4.4	3.8	4.1	3.5	3.1	3.1	1.97

¹ Locations: Hermiston, Powell Butte, Klamath Falls, Ontario (34 location years)² Vine Size: 1 = Large; 5 = Small³ Vine Maturity: 1 = Early; 5 = Late⁴ Tuber Shape: 1 = Round; 5 = Long, Narrow⁵ Russetting: 1 = Light; 5 = Heavy⁶ Skin Color: 2 = White; 3 = Buff; 4 = Brown; 5 = Dk. Brown⁷ Eye Depth: 1 = Deep; 2 = Shallow⁸ Size Uniformity: 1 = Poor; 3 = Fair; 5 = Excellent⁹ Shape Uniformity: 1 = Poor; 3 = Fair; 5 = Excellent¹⁰ Length to Width Ratio: 1 = Round; 2 = Long, Skinny

Table 4. Yield and quality characteristics of AO87277-6 and R. Burbank in Tri-State Trials, 1996.

Entry	Loc.	Yield (cwt/acre)					Spec. Grav.	Fry Color		Sugar Ends	Length/Width Ratio
		Total	US No. 1's		Oz/ Tuber	HF&BC		40°	44°		
			Yield	%							
AO87277-6	ID	495	419	85	6.8	0	1.092	3.0	2.0	40	2.06
	OR	659	507	77	7	1	1.089	3.0	3.0	0	1.61
	WA	790	655	83	9.8	0	1.083	3.0	2.0	—	1.71
	Avg	648	527	82	7.9	0.3	1.088	3.0	2.3	20	1.79
R. Burbank	ID	415	322	78	5.3	3	1.085	4.0	2.0	4	1.90
	OR	758	534	70	6.9	12	1.085	4.0	3.0	8	1.62
	WA	613	356	58	7.9	59	1.078	4.0	3.0	—	1.86
	Avg	595	404	69	6.7	25	1.083	4.0	2.7	6	1.79

Table 5. Average yield and quality characteristics of AO87277-6 and Russet Burbank in Western Regional Trials, 1997 - 1999¹.

Entry	Year	Yield (cwt/acre)						% US No. 1	Oz./ Tuber	Spec. Grav.
		Total	US No. 1		No. 2's & Culls	<4 oz				
			4-12 oz	>12 oz						
AO87277-6	1997	582	355	125	480	61	48	83	7.2	1.087
	1998	482	297	67	364	69	55	78	6.0	1.085
	1999	590	369	115	484	53	53	83	7.3	1.089
	Avg.	551	340	102	443	61	52	81	6.8	1.087
R. Burbank	1997	538	290	64	354	121	77	67	6.1	1.082
	1998	480	213	52	265	154	73	56	5.7	1.077
	1999	569	285	70	355	133	81	63	6.1	1.083
	Avg.	529	263	62	325	136	77	62	6.0	1.081

¹ Locations: California, Colorado, Idaho, New Mexico, Oregon, Texas, Washington

Table 6. Physiological defects of AO87277-6 and Russet Burbank in Western Regional Trials, 1997 - 1999¹.

Entry	Year	Internal Defects ²			External Defects ³		
		HH & BC	IBS	BS	K	GC	SB
		----- % -----		-- Scale ⁴ --		----- Scale ⁵ -----	
AO87277-6	1997	0.0	0.3	4.0	5.0	4.8	3.6
	1998	1.0	1.0	4.3	5.0	4.9	4.5
	1999	1.0	1.0	4.2	5.0	4.9	3.5
	Avg.	0.7	0.8	4.2	5.0	4.7	3.9
R. Burbank	1997	15.0	1.5	3.7	3.2	3.9	4.1
	1998	11.0	5.0	4.1	3.7	3.4	4.5
	1999	7.0	1.0	4.2	3.7	3.8	4.5
	Avg.	11.0	2.5	4.0	3.5	3.7	4.4

¹ Locations: California, Colorado, Idaho, New Mexico, Oregon, Texas, Washington² HH = Hollow Heart; BC = Brown Center; IBS = Internal Brown Spot; BS = Blackspot Bruise³ K = Knobbiness; GC = Growth Cracks; SB = Shatter Bruise⁴ Scale: 1 = poor, 5 = best⁵ Scale: 1 = severe, 5 = none

Table 7. Morphological characteristics of AO87277-6 and Russet Burbank in Western Regional Trials, 1997 - 1999¹.

Entry	Year	Vine Size ²	Vine Mat. ³	Stems/Hill	Tuber Shape ⁴	Degree Russ. ⁵	Eye Depth ⁶
AO87277-6	1997	3.8	3.3	2.6	4.1	3.3	3.5
	1998	3.6	3.0	2.2	3.9	3.6	3.8
	1999	3.3	3.5	----	3.8	----	----
	Avg.	3.6	3.3	2.4	3.9	3.5	3.7
R. Burbank	1997	3.7	3.3	2.7	4.1	3.3	3.5
	1998	3.9	3.2	2.3	4.2	3.4	3.5
	1999	3.5	3.4	----	4.5	----	----
	Avg.	3.7	3.3	2.5	4.3	3.4	3.5

¹ Locations: California, Colorado, Idaho, New Mexico, Oregon, Texas, Washington² Vine Size: 1.0 = small, 5.0 = large³ Vine Maturity: 1.0 = early, 5.0 = late⁴ Tuber Shape: 1.0 = round, 5.0 = long, narrow⁵ Russetting: 1.0 = light, 5.0 heavy⁶ Eye Depth: 1.0 = deep, 5.0 shallow**Table 8. Disease reactions for AO87277-6 and Russet Burbank in Western Regional Trials, 1997 - 1999.**

Entry	Year	Vert. Wilt	Early Blight	Late Blight		Common Scab	PLRV Foliar	Erwinia Soft Rot	Fusarium Dry Rot
				Foliar	Tuber ¹				
AO87277-6	1997	S	S	VS	35	MR	MS	VS	MS
	1998	S	S	---	10	MS	R	VS	S
	1999	---	----	----	3	----	----	----	----
R. Burbank	1997	S	MS	VS	10	R	VS	S	S
	1998	S	S	----	23	VR	MS	S	S
	1999	---	----	----	8	----	----	----	----

Field Ratings made at Aberdeen, ID by D. Corsini; and Hermiston, OR by D. Hane

1/ % Tuber Infection. Evaluations made at Corvallis, OR by Al Mosley

Table 9. Relative tuber composition of AO87277-6 and Russet Burbank at Aberdeen, ID¹.

Entry	Year	% Oven Dried Solids	% DWB			Mg/100g FWB	
			Dextrose	Sucrose	Protein	Vitamin C	Total Glycoalkaloids
AO87277-6	1997	23.5	0.08	0.22	5.20	28.8	4.9
	1998	23.2	0.05	0.18	6.00	30.5	8.2
	1999	25.2	0.05	0.21	5.50	32.0	9.7
	Avg.	24.0	0.06	0.20	5.57	30.4	7.6
R. Burbank	1997	21.9	0.11	0.17	4.20	21.5	2.4
	1998	21.2	0.10	0.17	5.20	21.9	7.7
	1999	23.2	0.07	0.18	4.80	22.4	8.2
	Avg.	22.1	0.09	0.17	4.73	21.9	6.1

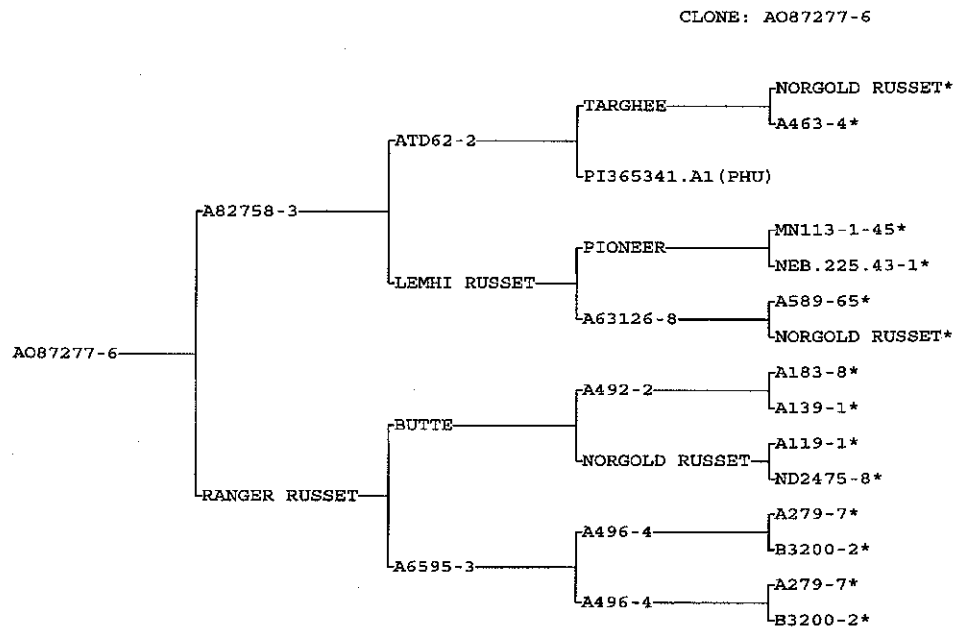
¹ Data courtesy Dr. Dennis Corsini, ARS/USDA**Table 10. Processing quality of AO87277-6 and Russet Burbank in Western Regional Trials, 1997 - 1999¹.**

Entry	Year	USDA French Fry Color Value			% Sugar Ends	Specific Gravity
		Field	40°	45°		
AO87277-6	1997	0.3	3.6	1.3	25	1.087
	1998	0.3	2.3	0.6	10	1.085
	1999	0.1	3.3	0.5	14	1.089
	Avg.	0.2	3.1	0.8	16.3	1.087
R. Burbank	1997	0.2	3.6	1.6	21	1.082
	1998	0.9	2.9	1.6	23	1.077
	1999	1.0	3.6	1.1	9	1.083
	Avg.	0.7	3.4	1.4	17.7	1.081

¹ Locations: California, Colorado, Idaho, New Mexico, Oregon, Texas, Washington

#200200252

Figure 1. AO87277-6 Pedigree



WALLOWA RUSSET

#200200252

Wallowa, tested as AO87277-6, was selected in 1989 at Powell Butte, Oregon from a cross between A82758-3 and Ranger Russet performed by Dr. J.J. Pavak, USDA-ARS, Aberdeen, Idaho in 1987.

Developers: Oregon, Idaho, and Washington Agricultural Experiment Stations and the USDA-ARS.

Wallowa produces much higher yields of U.S. No. 1's than R. Burbank. Wallowa tubers have higher specific gravity and better fry color from both 40° and 45° storage than R. Burbank. Wallowa is suitable for processing but may lack the shape uniformity and appearance necessary for fresh market approval.



Strengths: medium to high yields, excellent processing quality, few internal and external defects, adaptable to a wide range of soil and climatic conditions.

Weaknesses: occasional sugar end problems and shape uniformity can be erratic.

Incentives for Production: high yields, excellent processing ability.

Compared to Russet Burbank

Yield	+
Grade	++
Specific Gravity	++
Storability	-
External Defects	++
Internal Defects	++
Metribuzin Sensitivity	0

+ = better, 0 = same, - = worse

Agronomic Characteristics

Maturity	Late
Tubers	Long, occasionally pointed
Yield	Medium to High (+450 cwt./acre)
Specific Gravity	High (1.085)
Culinary Quality	Excellent processing, similar to R. Burbank when baked
Foliage	Large, erect vine
Diseases	MR to common scab and net necrosis. MS to tuber late blight and fusarium dry rot, S to verticillium wilt, early blight. VS to foliar late blight, and erwinia soft rot
Storability	Similar to Ranger Russet but less dormant than R. Burbank.

MR = moderately resistant, **MS** = moderately susceptible, **S** = susceptible, **VS** = very susceptible

	Total	Yield U.S. No. 1's			Yield		% No. 1's	Specific Gravity
	Yield	4-12 oz	>12 oz	Total	B's	2's & Culls		
Idaho ¹								
Wallowa	484	297	101	398	41	45	83	1.088
Russet Burbank	472	197	55	251	65	156	54	1.081
Oregon ²								
Wallowa	514	311	111	422	50	42	82	1.087
Russet Burbank	485	239	42	281	91	113	58	1.081
Washington ³								
Wallowa	722	387	168	555	54	113	76	1.079
Russet Burbank	721	324	79	403	85	234	55	1.074

¹ 6 trials grown in Idaho, 1997-1999, at Aberdeen and Kimberly

² 23 trials grown in Oregon, 1994-1999, at Hermiston, Klamath Falls, Ontario, Powell Butte

³ 3 trials grown in Washington, 1997-1999, at Othello

Wallowa Russet: A Full Season Long Russet for Processing and Fresh Market

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ABSTRACT

The Agricultural Experiment Stations of Oregon, Idaho, and Washington and the U.S. Department of Agriculture jointly released Wallowa Russet in 2002. This late maturing variety is most suitable for frozen french fry use, but may find limited fresh market potential because of outstanding flavor and texture when baked. Wallowa Russet was evaluated as AO87277-6 in Oregon irrigated trials from 1993 through 1999, and in western regional trials from 1997 through 1999. Averaged over 13 locations in seven states, Wallowa Russet produced total yields of 55.6 mt/ha compared to 53.5 and 45.7 mt/ha for Russet Burbank and Russet Norkotah, respectively, and U.S. No.1 yields of 44.4 mt/ha compared to 30.7 and 36.0 mt/ha for Russet Burbank and Russet Norkotah. Specific gravity is consistently higher for Wallowa Russet than for Russet Burbank and fry color is as light or lighter; sugar end development is less than that observed in Russet Burbank. Wallowa Russet is similar to Russet Burbank in susceptibility to *Verticillium* wilt, foliar early blight (*Alternaria solani*), and potato leafroll virus (PLRV). However, Wallowa Russet develops less net necrosis than Russet Burbank from PLRV infection. Wallowa Russet is more susceptible to com-

mon scab (*Streptomyces scabies*) than Russet Burbank. It has moderate resistance to potato virus Y (PVY). Tubers of Wallowa Russet are less susceptible to tuber infection and decay caused by potato late blight (*Phytophthora infestans*) than Russet Norkotah and Ranger Russet. Wallowa Russet has less hollow heart, brown center, blackspot bruise, and fewer growth cracks than Russet Burbank but is more susceptible to shatter bruise. Vitamin C is higher for Wallowa Russet (30.4 mg/100 g fresh weight) than for Russet Burbank (21.9) or Russet Norkotah (22.0), and protein content averaged 5.6% compared to 4.7% and 4.9% for Russet Burbank and Russet Norkotah, respectively.

RESUMEN

Las Estaciones Experimentales de Oregon, Idaho y Washington, y el Departamento de Agricultura de los Estados Unidos han liberado conjuntamente en el 2002 la variedad Wallowa Russet. Esta variedad de maduración tardía es más apropiada para su uso como papa frita congelada, pero además puede encontrar un mercado potencial limitado para su consumo fresco debido a su excelente sabor y textura cocido al horno. Wallowa Russet fue evaluada como AO87277-6 en pruebas bajo riego realizadas en Oregon desde 1993 hasta 1999 y en pruebas regionales de 1997 a 1999. En un promedio de 13 localidades en siete estados, Wallowa Russet dio rendimientos totales de 55.5 t/ha en comparación con

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ADDITIONAL KEY WORDS: *Solanum tuberosum*, variety, disease resistance, vitamin C.

53.5 y 45.7 t/ha de Russet Burbank y Russet Norkotah. La gravedad específica es consistentemente más alta para Wallowa Russet que para Russet Burbank y el color de la fritura es tanto o más claro; el contenido de azúcares reductores es menor que el observado en Russet Burbank. Wallowa Russet y Russet Burbank son similares en susceptibilidad a la marchitez causada por *Verticillium*, al tizón temprano del follaje (*Alternaria solani*) y al virus del enrollamiento (PLRV). Sin embargo, Wallowa Russet desarrolla menos necrosis reticulada originada por la infección de PLRV que Russet Burbank. Wallowa Russet es más susceptible a la sarna común (*Streptomyces scabies*) que Russet Burbank. Tiene resistencia moderada al virus Y de la papa (PVY). Los tubérculos de Wallowa Russet son menos susceptibles a la infección y pudrición causados por el tizón tardío (*Phytophthora infestans*) que los de Russet Norkotah y Ranger Russet. Wallowa Russet presenta menos corazón vacío, corazón negro, magulladuras en forma de puntos y menor cantidad de grietas de crecimiento que Russet Burbank, pero es más susceptible a las lesiones con fisuras del tejido. El contenido de Vitamina C es mayor en Wallowa Russet (30.4 mg/100g de peso fresco) que en Russet Burbank (21.9) o Russet Norkotah (22.0), y un promedio de 5.6% de contenido de proteína comparado con 4.7% y 4.9% de Russet Burbank y Russet Norkotah respectivamente.

INTRODUCTION

Wallowa Russet was evaluated as AO87277-6 and was cooperatively released by the Agricultural Experiment Stations of Oregon, Idaho, and Washington and the U.S. Department of Agriculture in 2002. "Wallowa," or "Fish Trap" in the Nez Perce language, is a common geographical name in north-eastern Oregon, especially in Wallowa County, the ancestral Nez Perce summer home. The clone originated from a 1987 cross between A82758-3 and Ranger Russet (Pavek et al., 1992) (Figure 1) by J. J. Pavek, USDA/ARS potato breeder at the University of Idaho Research Center, Aberdeen, Idaho. Wallowa Russet was initially selected at Powell Butte, Oregon, in 1991. After three years of increase and preliminary evaluations, it was included in replicated Oregon statewide trials from 1994 through 1999 at Powell Butte, Hermiston, Ontario, and Klamath Falls and in early and late Tri-State trials in Oregon, Washington, and Idaho in 1996. Wallowa Russet was also evaluated at 15 locations in seven western states in formal western regional trials from 1997 through 1999. Wallowa Russet is intended primarily for the processed frozen french fry industry.

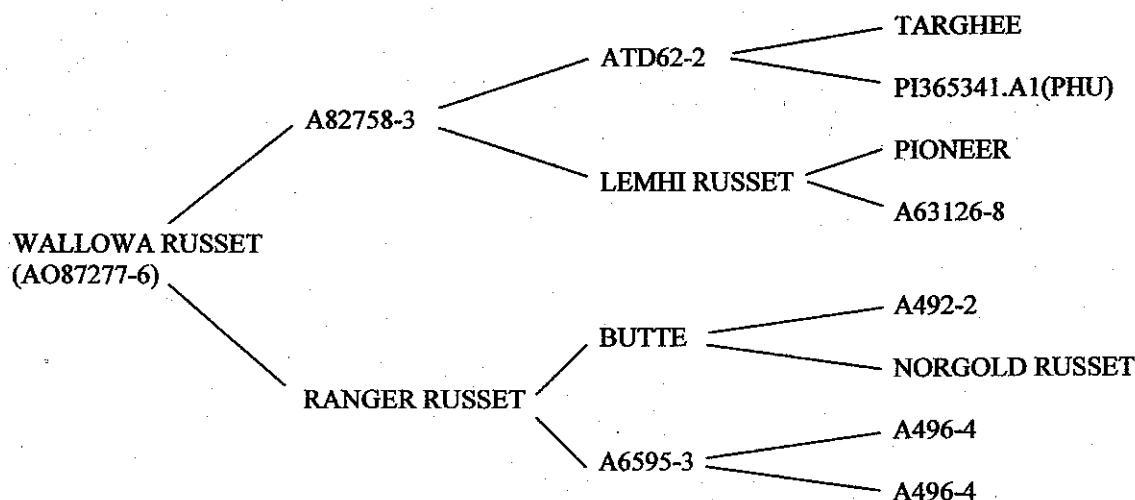


Figure 1:
Pedigree of Wallowa Russet (upper parent is female).

DESCRIPTION

Plants (Figure 2)

Growth habit: Medium height, semi-erect, spreading. Vine maturity is late (120+ days), similar to Russet Burbank in Oregon. *Stems:* Very weak anthocyanin pigmentation, weak wings. *Leaves:* Medium green, medium dense, short pubescence, open silhouette, with absent to weak anthocyanin pigmentation in petioles; small stipules. *Terminal leaflet:* Narrowly ovate with acuminate tip, cordate base, and slightly wavy margins. *Primary leaflets:* Five to six pairs per leaf; medium ovate with acuminate tip. *Secondary and tertiary leaflets:* Five to nine.

Inflorescence (Figure 2)

Wallowa Russet produces few flowers per plant. *Corolla:* Purple ~~Blue~~-violet on inner surface (Royal Horticulture Society Color Chart [RHSCC] plate 82C), light purple-violet on outer surface, pentagonal in shape. *Calyx:* Weak anthocyanin pigmentation.

Anthers: Yellow-orange (RHSCC 17A), broad coned with intermediate pollen production. *Stigma:* Capitate, medium green (RHSCC 137C). Low berry production.

Tubers (Figure 2)

Skin is brown (RHSCC 164B) and russetted. Tubers are long. Wallowa Russet tuber length/width/thickness ratio averaged 2.20/1.27/1.0 over three growing seasons at Hermiston, Oregon, for 200- to 300-g tubers compared to 2.22/1.18/1.0 for Russet Burbank. Eyes are shallow with 20 or fewer per tuber and are evenly distributed. Randomly selected tubers from 110 to 340 g are used for measurements and eye descriptions. Eye-brows are slightly prominent. Tuber flesh is white (RHSCC 155B).

Light Sprouts (Figure 2)

Reddish anthocyanin pigmentation at base; elongated, green; closed bud scales; with broad pubescent base.



FIGURE 2:
Photographs of Wallowa Russet plant, flower, tuber, and light sprout.

Agronomic Performance

Wallowa Russet produces a high percentage of U.S. No. 1 tubers with excellent quality for french fry processing and baking. In 23 Oregon statewide trials over 6 years, Wallowa Russet U.S. No. 1 yields averaged 51% and 37% higher than Russet Burbank and Russet Norkotah, respectively (Table 1). Wallowa Russet specific gravity averaged 1.086 vs 1.081 for Russet Burbank and 1.072 for Russet Norkotah. In western regional trials (18 early and 24 late harvest trials in seven states), Wallowa Russet total yields averaged 104% of Russet Burbank and 122% of Russet Norkotah. U.S. No.1 yields for Wallowa in these trials were 145% and 123% of Russet Burbank and Russet Norkotah, respectively (Table 2). Mean specific gravities were 1.085, 1.080, and 1.073 for Wallowa Russet, Russet Burbank, and Russet Norkotah, respectively. Wallowa Russet fries were equal to or lighter in color than Russet Burbank fries in Oregon and regional trials, averaging 0.4 in Oregon trials and 0.7 in regional trials compared to 1.0 and 1.3 for Russet Burbank. Fry color is scaled from 0.0 for light to 4.0 for dark fries. Tubers are stored at 7.2 C for 60 days prior to fry evaluations.

Resistance to Disease and Physiological Disorders

Disease reactions are reported on a relative scale ranging from very susceptible (VS) to very resistant (VR) (Table 3). This is a representation of a 0-9 score where 0 = no symptoms to 9 = severe symptoms. The relative scale is used because of year-to-year variability in disease ratings. Wallowa Russet is similar to Russet Burbank in susceptibility to *Verticillium* wilt, foliar early blight (*Alternaria solani*), and PLRV infection (Table 3), but has moderate resistance to net necrosis caused by PLRV, similar to Russet Norkotah. Wallowa Russet is rated moderately resistant to PVY and common scab (*Streptomyces scabies*). Wallowa Russet is similar to Russet Burbank in foliar and tuber susceptibility to late blight (*Phytophthora infestans*) (Table 4). Wallowa Russet is more susceptible to *Erwinia* soft rot than Russet Burbank. Typical bacterial ring rot symptoms have been observed in Wallowa Russet infected with *Clavibacterium michiganensis* subsp. *sepedonicus*. The incidence of physiological defects, hollow heart, brown center, and black spot bruise, in Wallowa Russet at harvest was less

TABLE 1—Performance of Wallowa Russet (WR), Russet Burbank (RB), and Russet Norkotah (RN) at four Oregon locations from 1994 through 1999¹.

Location	Number of Years	Total Yield (mt/ha) ²			US #1 Yield (mt/ha)			Specific Gravity		
		WR	RB	RN	WR	RB	RN	WR	RB	RN
Powell Butte	6	38.3	39.8	34.7	30.9	23.5	27.1	1.088	1.086	1.075
Klamath Falls	6	53.9	53.4	47.5	46.4	35.0	40.7	1.087	1.085	1.070
Hermiston	5	81.1	74.3	50.7	66.2	38.0	37.3	1.078	1.074	1.067
Ontario	6	61.6	54.9	46.1	48.8	30.7	35.3	1.091	1.079	1.075
Overall Mean		58.8	55.6	44.8	48.1	31.8	35.1	1.086	1.081	1.072

¹Trial locations in Oregon are Powell Butte, Klamath Falls, Hermiston, and Ontario.

²(mt/ha)/2.242=tons/Acre

TABLE 2—Performance of Wallowa Russet (WR), Russet Burbank (RB), and Russet Norkotah (RN) in western regional trials in 1997, 1998, and 1999¹.

Year	Total Yield (mt/ha) ¹			US #1 Yield (mt/ha)			Specific Gravity		
	WR	RB	RN	WR	RB	RN	WR	RB	RN
1997	57.0	54.2	47.0	47.0	33.8	39.2	1.085	1.081	1.072
1998	49.7	48.9	39.9	38.2	25.2	29.9	1.085	1.078	1.073
1999	60.1	57.5	50.3	48.2	33.1	39.0	1.084	1.080	1.073
Overall Mean	55.6	53.5	45.7	44.4	30.7	36.0	1.085	1.080	1.073

¹Data averaged across 15 locations in seven western states; California, Colorado, Idaho, New Mexico, Oregon, Texas, and Washington.

²(mt/ha)/2.242=tons/Acre

TABLE 3—Disease reactions for Wallowa Russet, Russet Burbank, and Russet Norkotah in western regional trials.

Disease	Wallowa Russet	Russet Burbank	Russet Norkotah
Vert. Wilt (<i>Verticillium dahliae</i>)	S ¹	S-MS	VS
Foliar Early Blight (<i>Alternaria solani</i>)	S	S-MS	VS
PLRV	S	S	S
Net Necrosis	MS-MR	S	MR
PVY	MR	S	S
Common Scab (<i>Streptomyces scabies</i>)	MR	VR	R

¹Where S = susceptible, R = resistant, M = moderately, V = very. VS would indicate severe impact or death from the disease and VR would indicate no symptoms or impact from the disease are observed.

TABLE 4—Response to late blight for Wallowa Russet and standard varieties, Corvallis, Oregon, 1999.

Variety	Foliar Rating ¹	% Tuber Infection ²	Decay Index ³
Wallowa Russet	76.2	10.0	3.2
Russet Burbank	71.2	22.5	6.0
Ranger Russet	62.5	50.0	6.2
Russet Norkotah	92.5	12.5	2.0
Atlantic	92.5	0.0	0.0

¹Foliar injury rating: 0 = 0%; 50 = 50%; 100 = 100% of leaf surface necrotic.

²Percentage of tubers with late blight infection at harvest.

³Tuber decay severity rating: 0 = no infection; 10 = uncontrollable decay.

TABLE 5—Physiological defects in Wallowa Russet, Russet Burbank, and Russet Norkotah in 23 Oregon statewide trials, 1997-1999.

Variety	HH	Internal Defects ¹			External Defects ²	
		BC	BS	Sugar Ends	GC	SB
		%			Rating Scale ³	
Wallowa Russet	2.3	0.0	2.0	1.3	4.6	4.2
Russet Burbank	3.0	2.0	4.3	4.7	3.6	4.7
Russet Norkotah	3.0	3.0	1.3	5.7	4.8	4.5

¹HH = hollow heart; BC = brown center; BS = blackspot bruise.

²GC = growth cracks; SB = shatter bruise.

³Scale: 1 = severe; 5 = none.

TABLE 6—Average sensory evaluations of baked potatoes for Wallowa Russet and Russet Burbank grown at Aberdeen, Idaho in 2000-2001¹.

Variety	At Harvest				After 5 Months of Storage (4.4 C)			
	Color	Texture	Flavor	Overall	Color	Texture	Flavor	Overall
Wallowa Russet	6.8	6.1	6.2	6.2	6.5	5.8	5.8	5.9
Russet Burbank	6.6	6.1	6.1	6.0	6.5	5.8	5.7	5.8

¹Evaluations were made by trained panelists using double blind procedures. Ratings were made using a 1-9 scale with 9 = best.

than or equal to that observed in Russet Burbank and Russet Norkotah in Oregon trials (Table 5). In these trials Wallowa Russet experienced more shatter bruise at harvest than Russet Burbank, but fewer growth cracks. Knobbiness and greening were not observed in Wallowa Russet under the wide range of evaluation environments. Wallowa Russet developed less sugar ends than Russet Burbank.

Biochemical and Nutritional Characteristics

In three years at Aberdeen, Idaho, Wallow Russet total glycoalkaloids averaged 7.6 mg/100 g fresh weight compared to 6.1 for Russet Burbank and 3.2 for Russet Norkotah. Vitamin C content averaged 30.4, 21.9, and 22.0 mg/100 g fresh weight for Wallowa Russet, Russet Burbank, and Russet Norkotah, respectively while protein averaged 5.6%, 4.7%, and 4.9%, respectively, on a dry weight basis.

Usage

The primary use for Wallowa Russet is expected to be processed frozen french fries. This variety requires a 120-day or longer growing season to achieve optimum yield and quality. Wallowa Russet is relatively free of external and internal defects, compared with Russet Burbank, resulting in a high percentage of quality yield. It is adapted to the longer growing seasons of the Columbia Basin and Treasure Valley areas of Washington, Oregon, and Idaho. Tubers of Wallowa Russet are similar in color and russetting to Russet Burbank, but are not as long. Wallowa tuber shape is more variable than that for Russet Norkotah and this, coupled with lighter skin color and short dormancy, may limit its usefulness for fresh market. However, it has produced

more attractive tubers than most other russets on heavy silt loam soils in Oregon's Willamette Valley. In replicated Idaho baking trials (Table 6), Wallowa Russet had color, texture, and flavor readings similar to Russet Burbank at harvest and equally good readings after 5 months at 4.4 C/40 F.

Management

Management factors for Wallowa Russet have not been extensively studied. However, three years of evaluation at Aberdeen, Idaho, indicate moderate susceptibility to metribuzin injury. Pre-plant incorporation, and high rates post-emergence of metribuzin should be avoided with this variety.

Tuber dormancy for Wallowa Russet is very short and sprout inhibition would be necessary for any storage situation for frozen fries, with the first application made within a month of harvest. A second application would likely be needed in late winter. Seed storage temperatures should be maintained at 2.8-3.9 C.

AVAILABILITY

An application for plant variety protection is pending for Wallowa Russet. Inquire with local seed growers for availability. Limited quantities of certified *in vitro* and greenhouse stocks are available from the Foundation Potato Seed Project at Oregon State University.

ACKNOWLEDGMENTS

The authors gratefully acknowledge leadership by Seed Certification and Foundation Seed personnel at Oregon State University in characterizing Wallowa Russet response to bacterial ringrot and the production of certified pre-nuclear planting stocks for commercial seed increase. The USDA/CSREES special Potato Program Grant funded development of Wallowa Russet, in part. The Oregon, Washington, and Idaho Potato Commissions also provided support. Approved for publication by Oregon State University Agricultural Communications as Technical Paper No. 11963.

LITERATURE CITED

- Pavek JJ, DL Corsini, SL Love, DC Hane, DG Holm, WM Iritani, SR James, MW Martin, AR Mosley, JC Ojala, CE Stanger, and RE Thornton. 1992. Ranger Russet: A long russet potato variety for processing and fresh market with improved quality, disease resistance, and yield. *Am Potato J* 69:483-488.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E

STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) State of Oregon by/through STBHE acting on behalf of Oregon State University <i>per correspondence May 28, 2007</i>	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER: AO87277-6	3. VARIETY NAME: Wallowa Russet
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and County) Office of Technology Transfer Oregon State University 312 Kerr Administration Building Corvallis, OR 97331 <i>9-17-2007</i>	5. TELEPHONE (Include area code) 541-737-0674	6. FAX (Include area code) 541-737-3093
7. PVPO NUMBER #200200252		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

The STATE OF OREGON, Acting by and Through the State Board of Higher Education on behalf of OREGON STATE UNIVERSITY is a partner in the Northwest (Tri-State) Potato Variety Development Program and a signatory of the General Agreement on Policy and Procedure for Release of New Publicly Developed Plant Varieties in Idaho, Oregon and Washington, between Washington State University, Oregon State University, University of Idaho and the United States of America, as represented by the Secretary of Agriculture. In accordance with provision 2.2 of this Agreement, Oregon State University is applying for this PVPC.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

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**U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705**

**EXHIBIT F
DECLARATION REGARDING DEPOSIT**

NAME OF OWNER (S) State of Oregon by/through STBHE acting on behalf of Oregon State University <i>per correspondence</i> <i>May 29, 2007 LMC</i>	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Office of Technology Transfer Oregon State University 312 Kerr Administration Building Corvallis, OR 97331 United State of America	TEMPORARY OR EXPERIMENTAL DESIGNATION AO87277-6
NAME OF OWNER REPRESENTATIVE (S) <i>9-17-2007</i>	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Office of Technology Transfer Oregon State University, 312 Kerr Administration Building, Corvallis, OR 97331 United States of America Ph: 541-737-8100	VARIETY NAME Wallowa Russet FOR OFFICIAL USE ONLY PVPO NUMBER #200200252

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

John M. Cassady
Signature
John M. Cassady, VP for Research

May 29, 2007
Date

Department of
Crop and Soil Science

OREGON
FOUNDATION POTATO SEED
PROGRAM



OREGON
STATE
UNIVERSITY

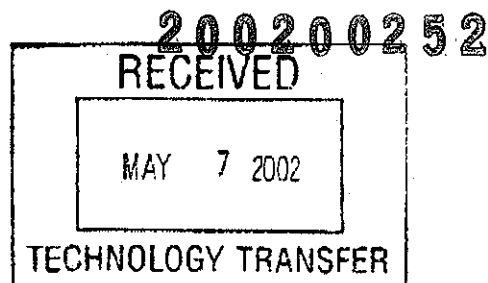
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Wednesday, May 01, 2002

TO: Laurel Halfpap
Office of Technology Transfer
312 Kerr Administration Bldg.
Oregon State University
Corvallis, Oregon 97331

FROM: Solomon Yilma, Laboratory Manager, Oregon Foundation Potato Seed
Program

SUBJECT: Seed Stock Repository for Oregon State University Potato Varieties

This letter is to confirm that the Oregon Foundation Potato Seed Program (OFPSP) maintains all Oregon potato varieties, including Wallowa and Umatilla russets, in a tissue culture bank in the Crop and Soil Science Department. The OFPSP is a publicly funded tissue culture facility which maintains more than 40 commercial varieties & advanced breeding clones *in vitro* for increase and distribution to cooperators and growers as requested.

If you have further questions please contact us.

Best regards.